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TEACHER EDUCATION

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THE SOCIAL IMPACT OF THE TEACHER ON THE PUPIL*

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Section I

The Nature and Importance of the Problem

Few types of professional activities call for human contacts as close and as personal as those that arise in teaching. And in no other profession are these contacts regularly maintained between persons so divergent in age and experience. Social psychology has pointed out the significance of interaction among persons in the development of patterns of thought and behavior at all ages. It would seem, therefore, that the teacher's contribution to the social development of her pupils may be especially significant, in view of the peculiarly intimate character of teacher-pupil relationships, and the impressionable age during which pupils experience these contacts.

The problem undertaken in this study is of such a nature as to have significance for at least three groups of educational workers. For the teachers themselves, the resulting data should provide an aid in the recognition of socially significant teacher-pupil relationships, and some of the conditions under which teacher influence is most desirable and effective. For administrators, the data should have value in the selection, assignment, supervision, and promotion of teachers. For teacher training institutions, the data should make available additional criteria for the selection of candidates for training and assist in the building of new content into the teacher training curriculum.

It is immediately apparent that the investigator in the field of social relationships and influences is concerned with extremely complex processes. Indeed, the very complexity and inherent difficulty of this type of problem is no doubt partly responsible for the dearth of studies in the field. It would seem reasonable to suppose, however, that those persons and institutions which are most directly involved in the child's social experience, such as the family and its members, and the school and its staff, should play an important part in shaping the child's social attitudes, behavior, and general social adjustment. Realizing the complexity of the problem and the probability that great individual differences exist among pupils in the degree of their susceptibility to the social influence of the school, this study will seek evidence on the social impact of the teacher on the pupil. An attempt will be made to answer the following questions:

I. Are there significant differences among high schools in the social adjustment, attitudes, information, and behavior
   (a) Of the pupils? and
   (b) Of the teachers?

II. What relationship *exists* between teachers' and pupils' social adjustment, attitudes, information, *and* behavior?

III. Do these social relationships show significant change during a six months interval within a single school year?

Section II

The Plan of the Investigation

The general plan of this investigation involved the application, near the beginning and the end of the school year, of a group of tests of social information, attitudes, and adjustment to the pupils and teachers in three high schools in the vicinity of Madison, Wisconsin. The purpose of the investigation was to discover the relationships between pupils' scores on the tests and the social qualities of their teachers.

* The author wishes to express appreciation for assistance and encouragement received from Dr. A. S. Barr, Professor of Education, University of Wisconsin, Madison, Wisconsin, in the conduct of this study.

School I is located about twenty miles from Madison in a town with a population of 1400. The enrollment in grades 9–12 was 245, and the staff consisted of nine full time teachers in addition to the superintendent, who taught only part time. School II is located in a small village of 450 persons, and is only ten miles from the city of Madison. Grades 9–12 enrolled 90 pupils, who were taught by a staff of five teachers, including the superintendent. School III is in a village of 400 people, fourteen miles from Madison, and has 70 pupils in grades 9–12, with three teachers, including the superintendent.

The cooperating schools varied considerably in enrollment and in the type of community that they served. The total number of pupils studied was 405, and the number of teachers was 18, if we include the superintendents, all of whom did some teaching.

TABLE I

THE MEASURING INSTRUMENTS

Tests Administered to the Pupils*	Tests Administered to the Teachers
Wood's Right Conduct Test	Wood's Right Conduct Test
Washburne's Social Adjustment Inventory	Washburne's Social Adjustment Inventory
Symond's "What Kind of a Year Are You Having?"	Bell's Adjustment Inventory
Student Questionnaire	Teachers' Questionnaire
Remmers' Scale of Measuring Attitude Toward Any Teacher	
Jones' Observational Scale for Rating Citizenship at School	

* Administered twice, once in October and again in April.

The schools to be studied were selected on the basis of three general criteria.

First, it was thought desirable to conduct the study in schools located in communities which were not too complex, from the point of view of social life and organization. On this basis, rural or village high schools were felt to be preferable to city high schools.

Second, the type and size of school used for such a study should be typical of the schools of the state. It has been shown[1] that a majority of the high schools of Wisconsin, a typical mid-western state in this respect, fall into the size group represented by the schools used in the present study.

[1] "A Study of Small High Schools in Wisconsin", Report of Committee on Small High Schools, Department of Public Instruction, Madison, 1936.

Third, it was felt that some variations of educational philosophy, school administration, and organization should be represented among the schools studied. The three schools selected seem sufficiently dissimilar in size and organization to afford such variations.

The names of the measuring instruments used in this study are indicated in Table I.

In the case of School III, because of delay in the first administration, the Symonds Inventory and the Student Questionnaire were used only once. And the Jones Rating Scale for School Citizenship was applied to only a sampling of pupils in Schools I and II, because of the excessive time required for rating all pupils in the study. All these instruments are described below.

Wood's Right Conduct Test was devised by Superintendent Harlow Wood of the Munising, Michigan, public schools as a test of knowledge of accepted behavior standards in typical school situations. It consists of two parts; Part I presents brief descriptions of 40 situations involving questions of social conduct. The pupils select the appropriate behavior item, comment, or evaluation from several which are suggested with reference to each of the forty items. Part II contains 60 true-false statements relating to questions of social behavior, to which the student responds in the usual way. This test was used as a measure of social information. While it obviously covers only a small area in the total field of social behavior, it was felt that it would yield a useful indication of the degree to which pupils are informed of accepted standards of conduct in simple social situations.

The Washburne Social Adjustment Inventory, includes a test of objectivity, which is defined as ability and willingness, under the conditions of the test, to recognize and report accurately one's own conduct and feelings. Papers with unfavorable scores on this part of the test are discarded. In addition, the inventory was tried out extensively in personal interviews to detect such intentional inaccuracies, and the findings led to revision of some of the items.

Symonds' "What Kind of a Year Are You Having?" is a scale of pupil adjustment attitudes containing twenty-two statements so scaled that they run from one extreme of adjustment to the other, by evenly graded steps. Pupils are instructed to check those statements which they could truthfully say about

themselves, and to place a cross before those about which they are doubtful. The author describes this scale as a general measure of pupil adjustment. It was used in the present study in the hope that it would provide a supplementary indication of pupils' social adjustment.

The Student Questionnaire was constructed especially for the present investigation, and consists of 25 questions to be answered by "Yes", "No", or "?", and two questions in which the pupils are asked to check traits especially liked or disliked in teachers. The 25 questions deal largely with the pupils' opinions and attitudes regarding teachers in general.[2]

The Remmers Scale was designed to measure attitude toward any teacher. It consists of 45 statements about the teacher, ranging from "is perfect in every way" to "is a failure as a classroom teacher". Pupils are asked to check only those statements which apply to the particular teacher being rated. Scale values have been assigned to each of the forty-five statements, and the score is merely the scale value of the median item among those checked, the statements being arranged in a regular sequence from the most to the least favorable.

For the purposes of this study, the Remmers Scale was supplemented by the addition of 15 questions dealing with the classroom behavior and out-of-school habits of the teacher being rated. These were scored by indicating the total number of favorable responses, the highest possible score, being, of course, 15. The questions were designed to secure information on pupil's beliefs relative to the actual social behavior and habits of their teachers. Although many of such beliefs may be erroneous, it is no doubt the beliefs rather than the actual facts which determine the pupils' attitudes toward teachers.

The Jones Observational Scale for Rating Citizenship at School was developed especially for use in the New Haven experiment in character and citizenship training, directed by Jones and reported in 1936.[3] The scale consists of thirty-four questions relating to school behavior, which the teacher is asked to answer by indicating that the described behavior occurs in the case of a particular pupil very frequently, frequently, sometimes, or never. The teacher merely draws a circle around the appropriate response, for which the code letters, VF, F, S, and N are used, respectively. The responses are assigned arbitrary values of 5, 3, 2, and 0, with the most favorable response to be scored 5, and the next 3, and so on for each question. As was indicated earlier this scale was applied to only a random sampling of pupils in Schools I and II, the total number rated being 35. The rating was done in each case by all the teachers of each pupil, and the score represents, therefore, a composite judgment of two to four teachers. Since Jones' results indicated a high consistency between the ratings obtained of pupils and their performance on tests of character and citizenship, this instrument appears to have value as a measure of school behavior. It may be remarked, incidentally, that observational techniques for the study of personality and behavior are coming to be regarded as a more valuable approach to problems of this character than has been supposed.

The Bell adjustment Inventory was chosen to supplement the Washburne Social Adjustment scores of the teachers included in the study. This was done for two reasons: first, as a means of providing a check on the results of the Washburne Inventory; and, second, in order to secure data on other phases of teachers' adjustment, which might help to explain their total social adjustment.

The Teacher Questionnaire was especially constructed for use in the present investigation. It consists of 37 questions to which the teacher is asked to respond by drawing a circle around "yes", or "no", or "?". The questions deal with the teacher's opinions, attitudes, and practices in the field of teacher-pupil relationships, and in certain aspects of social behavior. Preliminary blanks call for data on the teacher's training, experience, general health, and teaching field, together with a statement of the number of years in her present position. Responses were tabulated for each question separately.

All the tests and other measuring instruments were administered by the principals in each school, except that in Schools II and III the writer administered the Remmers Scale. This was done because of a feeling on the part of the superintendents in these schools that the pupils would respond with greater frankness if some person outside the faculty

[2] Data relative to the validity and reliability of each of these measures given in the original report have been here omitted.

[3] Jones, Vernon, *Character and Citizenship Training in the Public Schools*, Chicago: University of Chicago Press, 1936.

were to administer the scale. Of course the pupils were assured in all cases that none of the data secured on the tests would be used in any way detrimental to them or their school marks, and that their teachers would not see the results of the Attitude Scales. The writer feels that the pupils in all three of the cooperating schools responded with honesty and sincerity, with the exception of a very few individuals. A similar opinion was expressed by the cooperating superintendents.

Section III

Differences in Social Adjustment, Attitudes, Information, and Behavior

It will be recalled that this investigation was directed toward the securing of information concerning three questions related to the social impact of the teacher on pupils. These questions were as follows:

1. Are there significant differences among high schools in the social adjustment, attitudes, information, and behavior:
   a. Of the pupils?
   b. Of the teachers?
2. What relationship exists between the teachers' and the pupils' social adjustment, attitudes, information, and behavior?
3. Do the relationships studied show significant changes during a six months interval in the course of a single school year?

The present chapter is concerned with the first of these questions.

To obtain a measure of social adjustment, the Washburne Social Adjustment Inventory was filled out by the pupils of the three schools cooperating in the study, both at the beginning and at the end of the experimental period. Symonds' "What Kind of a Year Are You Having?", Form A, was checked by all the pupils in all schools in October, and Form B by the pupils of Schools I and II in April. The Individual Scores on these inventories were tabulated by schools, grades, and sexes. The average scores made by the pupils of each of the schools in October are presented in Table II.

It will be noted that the scores of School II are perceptibly superior to those of Schools I and III on the Symonds Inventory, on which the lowest scores represent most favorable adjustment. There is practically no difference between the average scores earned on this instrument by the pupils of Schools I and III.

Table II

Pupils' Adjustment Scores

Scale	School I	School II	School III
Symonds	3.53	3.28	3.56
Washburne "t"	10.63	12.92	11.85
"s"	12.84	12.24	15.74
"a"	18.03	16.27	19.73
"p"	50.48	46.15	49.77
"i"	5.25	4.53	4.41
"c"	13.38	12.53	14.25
"h"	4.33	4.47	4.39
Washburne Total	335.07	342.49	329.66

School II also showed a slightly better average total social adjustment score on the Washburne Social adjustment scale than Schools I and III, though its advantage over School I is very slight. The scores on the seven divisions of the test, designated by letters as shown in table III, are subtracted from a fixed number to obtain the total score; thus the lowest score in each case represents the most favorable adjustment.

School II has the highest average score for the "t" element of the inventory. This element is defined by the author as "truthfulness", indicating "ability and willingness to answer such questionnaires as the SAPICH accurately". Although questions included in this element of the inventory are not designated as a measure of social adjustment, they are related to the problem of the dependability of the responses. The author recommends discarding all papers with "t" scores above thirty. It is, therefore, apparent that while some unwillingness to answer such questionnaires was manifested, the responses are to be regarded as generally satisfactory.

School II also presented the most favorable adjustment on the "s" (sympathy) element of the inventory, with School I not far behind, and School III definitely in third place. This element is defined by the author as "sensitive, empathetic, non-negative responsiveness to people."

School II again shows the most favorable average score on the "a" (alienation) element of the inventory. This element is supposed to indicate a superior degree of "psychological intimacy, rapport, and security with people."

The same tendency for School II to score somewhat above those of the other two schools appears also on the "p" (purpose) element of the inventory. This element is defined as "desire definitely directed toward a goal involving plan, evaluation, selection, and effort."

School III shows the most favorable average pupil score for the "i" (impulse-judgment) element of the inventory followed in order by Schools II and I. This element is defined as "the ability to judge between impulses in such a way that an immediate or easy satisfaction is sacrificed for one which is recognized as greater, but more remote or difficult."

School II placed somewhat above School I, with School III third on the "c" (control) element, which was defined as "self control and the ability to make and execute plans."

School I, with Schools III and II following in that order, was first on "h" (happiness) scores. This test element is defined by the author as "contentment and the feeling of well-being."

TABLE III

DIFFERENCES AMONG SCHOOLS IN MEAN TOTAL SCORES ON THE WASHBURNE SOCIAL ADJUSTMENT INVENTORY FOR OCTOBER

	Diff. m	S.D. Diff. m	Critical Ratio
Schools I and II	7.42	4.292	1.73
Schools II and III	12.83	5.578	2.30
Schools I and III	5.41	5.22	1.04

According to the critical ratios shown in Table III, the school differences in mean scores for the entire Washburne Inventory approach statistical significance only between Schools II and III, where the critical ratio is 2.3.

Critical ratios were also computed for differences in mean scores among the three schools studied on Symonds' "What Kind of a Year Are You Having?" These are shown in Table IV.

Only in the case of differences between Schools I and II does the critical ratio indicate a close approach to statistical significance. In general, it must be concluded that differences among the three schools in the mean social adjustment scores of pupils on the Washburne and Symonds Inventories in October were not statistically significant.

Pupil responses to the items on the Student Questionnaire are presented in Table V. The responses are expressed in terms of the percentage of the total group giving each possible answer.

Question 1, "Do you admire some teachers more than others?", was answered in the affirmative by 9:% of the pupils in Schools I and II, and by 91% in School III. This virtually unanimous agreement is not surprising, since the widespread tendency of pupils to find some teacher personalities more congenial than others is apparent to the most casual observer, as is the same tendency in every other area of human relationships.

Question 2, "Do you think that you do better work for the teachers you especially like than for others?", was answered in the affirmative by virtually the same percentage of pupils in all three schools.

Question 3, "Have you ever wished to be like a favorite teacher?", was answered in the affirmative by 53%, 45%, and 44% of the pupils in Schools I, II, and III respectively, indicating no substantial difference among them at this point. It may be regarded as doubtful, however, whether all pupils who have been affected in this way by teachers would admit it in answer to direct questioning. Not only would some of them hesitate to reveal such a wish, but it is probable that in many cases the tendency to emulate approved qualities in others remains partly or wholly unconscious. In any of the cases, it does not appear that pupils of the three schools studied differed materially in their attitudes in the matter.

TABLE IV

DIFFERENCES AMONG SCHOOLS IN MEAN SYMONDS SCORES FOR OCTOBER

	School I	School II	School I	School III	School II	School III
Number	223	71	223	54	71	54
Mean	3.56	3.29	3.56	3.56	3.29	3.56
S. D.	1.02	.878	1.02	.866	.878	.866
S. D. mean	.067	.105	.067	.119	.105	.119
Critical Ratio	2.16		(No. Diff.)		1.70	

TABLE V

PUPILS' SOCIAL ATTITUDES AS INDICATED BY QUESTIONNAIRE RESPONSES EXPRESSED IN PERCENTAGES

Item No.	Question	School I			School II			School III		
		Yes	No	?	Yes	No	?	Yes	No	?
1.	Do you admire some teachers more than others?	95	4	1	95	4	1	91	7	2
2.	Do you think that you do better work for the teachers you especially like than for others?	70	26	3	70	26	4	73	25	2
3.	Have you ever wished to be like a favorite teacher?	53	40	7	45	51	4	44	52	4
4.	Do you think that it is all right for teachers to smoke?	33	57	10	16	65	19	46	36	18
5.	Do you think that it is all right for teachers to use alcoholic drinks, such as beer, wine and whiskey?	8	87	5	0	90	9	7	79	14
6.	Do you think it is all right for teachers to play cards, that is, gambling card games?	11	77	11	9	76	15	14	66	20
7.	Do you approve of teachers dancing?	89	6	5	95	2	4	94	6	0
8.	Does your community approve of teachers' smoking?	8	57	35	4	52	44	9	29	62
9.	Does your community approve of teachers' drinking?	3	75	22	0	69	31	2	50	48
10.	Does your community approve of teachers' playing cards?	28	33	39	32	26	42	39	11	50
11.	Does your community approve of teachers' dancing?	68	8	24	74	7	19	62	9	29
12.	Have you ever wanted to go to a teacher with your personal problems and difficulties?	53	42	5	55	45	0	29	64	7
13.	Is there a certain teacher whom you would prefer above the others for such a personal advisor?	84	12	4	84	11	5	80	16	4
14.	Does your school have a system of teacher-advisors for students?	52	25	23	51	31	18	11	75	14
15.	Do you talk over your personal problems with any teacher?	16	30	4	19	77	4	6	92	4
16.	Have you ever known students to try to be like some teacher whom they especially liked?	61	36	3	64	31	5	46	48	6
17.	Would you like to become a teacher?	23	64	14	16	75	9	16	70	4
18.	Have you ever been keenly disappointed upon learning that some teacher whom you admired was less worthy of admiration than you had believed?	54	42	4	46	48	66	33	56	11
19.	Is your favorite teacher a man?	32	60	8	30	54	16	72	14	14
20.	Do you approve of students' smoking?	13	77	10	11	74	15	12	70	18
21.	Is smoking very common among the students in your school?	60	15	25	40	27	33	25	46	29
22.	Do students frequently cheat in your school?	33	31	36	11	53	36	18	43	39
23.	Do you think that cheating is seriously wrong?	90	5	5	79	12	9	89	4	7
24.	Do you believe that the school ought to make some provision for character education?	87	5	8	93	2	5	75	7	18
25.	Do you believe that the character and personality of the teacher have any important influence on students?	95	4	1	95	2	3	96	2	2

Question 4, "Do you think that it is all right for teachers to smoke?", revealed considerable divergence of opinion among the three schools, the proportion of pupils in Schools I, II, and III who indicated no objection to the practice having been 33%, 16%, and 46%, in that order. This difference of opinion seems too large to be regarded as the result of mere chance, and will be discussed further in a later connection.

Question 5, "Do you think that it is all right for teachers to use alcoholic drinks, such as beer, wine, and whiskey?", was answered in the affirmative by only 8%, 0%, and 7% of the pupils, with an overwhelming majority of the opinions definitely opposed to the practice. Differences among the schools on this point again appear to be negligible.

Question 6, "Do you think that it is all right for teachers to play cards, that is, gambling card games?", was given affirmative responses by only 11%, 9%, and 14% of the pupils, with a very small group expressing doubt or uncertainty, and the large body of opinion definitely opposed to the practice. School differences on this point do not appear significant.

Question 7, "Do you approve of teachers dancing?", showed more than 90% of all the pupils approving, with no significant difference among the schools.

Questions 8, 9, 10, and 11 deal with general community attitudes rather than pupil attitudes, and will therefore be omitted in this discussion.

Question 12, "Have you ever wanted to go to a teacher with your personal problems and difficulties?", drew affirmative responses from more than half,—53% and 55% in Schools I and II, but from only 29% in School III. The comparatively small number of affirmative responses to this item from School III can not be accounted for by data collected in this study in any specific way, but may have a relation to certain other facts to be presented later with reference to this school. A priori, the apparent lack of pupil inclination to establish a more sympathetic relationship with teachers, may be interpreted either as an indication of greater personal independence on the part of these pupils, or as evidence of a lack of sympathetic attitudes on the part of teachers.

Question 13, "Is there a certain teacher whom you would prefer above the others for such a personal adviser?", yielded remarkably consistent results, having been answered affirmatively by 84%, 84%, and 80% of the pupils in Schools I, II, and III, respectively. This result offers rather striking confirmation of the theory, widely held but difficult to demonstrate, that certain teachers' qualities or combination of qualities are especially effective in winning the confidence of pupils. Unfortunately, the particular qualities required cannot be identified by these replies.

Question 14, not having been concerned with attitudes of pupils, is omitted from this discussion.

Question 15, "Do you talk over your personal problems with any teacher?", should be considered in relation to Question 12, in response to which approximately half the pupils indicated a desire to talk over their problems with a teacher. Only 16%, 19% and 6% indicated that they actually do have such personal talks with teachers. The fact that one-half the pupils want the sort of personal help which teachers should be able to give, while fewer than one in six avail themselves of such help, would seem to indicate a need for the establishment of a higher degree of rapport, and mutual understanding in the field of teacher-pupil relationships. It will be observed that pupils of School III, a smaller proportion of whom indicated a wish to talk over their personal problems with teachers, appear to do so in fewer cases than do the pupils of Schools I and II.

Question 16, "Have you ever known students to try to be like some teacher whom they especially liked?", also secured what appears to the writer as having been a very significant response. Sixty-one per cent in School I, 64% in School II, and 46% in School III replied in the affirmative to this question. The smaller proportion of "Yes" answers in School III again points to the possibility of less cordial pupil-teacher relationships, although it is not to be regarded as proof of such a condition. The fact that the proportion of pupils indicating a belief that pupils often tend to emulate teachers whom they especially like is well above half, seems significant to the writer in view of a common tendency to minimize the importance of the teacher's example as a factor in the educational process.

Question 17, "Would you like to become a teacher?", received an affirmative answer from only 23%, 16% and 16% of the pupils in

the three schools, indicating that whatever the pupils may think of the teachers themselves, they are not generally so attracted to the teaching profession as to wish to enter it. It is obvious, however, that many factors affect pupil attitudes on such a matter as this. It is notable, too, that in School I approximately fifty per cent more pupils expressed a wish to become teachers than in Schools II and III.

Question 18, "Have you ever been keenly disappointed upon learning that some teacher whom you admired was less worthy of admiration than you had believed?", was answered with a "Yes" by 54%, 46% and 33% of the pupils in the three schools in that order. The range of difference between Schools I and III on this point is considerable. On the whole, the responses indicate a clear tendency for pupils to place admired teachers on a sort of pedestal, and to experience disillusionment when they (teachers) prove themselves unworthy.

Question 19, "Is your favorite teacher a man?", appeared to show a large difference in sex preferences for teachers, the affirmative responses having been 32%, 30%, and 72% in Schools I, II, and III respectively. However, this may be a spurius difference, since the fact that two of the three teachers of School III were men would make it logical to expect the result obtained in that instance.

Question 20, "Do you approve of students' smoking?", showed general agreement among the pupils of all three schools in opposition to the practice, the affirmative responses having been only 13%, 11% and 12%.

Question 21 and Question 22 were informational in character.

Question 23, "Do you think that cheating is seriously wrong?", elicited affirmative responses from 90%, 79%, and 89% of the pupils. School II appears from these results to be somewhat less unanimous in condemning the practice than are Schools I and III. Nevertheless, the pupils generally seem to frown on the idea in the abstract, even though some investigations have reported cheating to be an alarmingly common practice among high school and college students.

Question 24, "Do you believe that the school ought to make some provision for character education?", was answered in the affirmative by 87%, 93%, and 75% of the pupils, with the largest difference apparent between Schools II and III. The large proportion of "Yes" responses in all the schools would seem to indicate a definite recognition on the part of pupils of a need for guidance in personality and conduct, and of the strategic position of the school for providing such guidance.

Question 25, "Do you believe that the character and personality of the teacher have any important influence on students?", showed the pupils to be almost unanimous in agreement, the affirmative responses having been 95%, 95%, and 96%. This agreement appears to the writer to represent a highly significant argument for the exercise of extreme care in the selection of teachers, from the point of view of their personal and social qualities.

Also included in the Student Questionnaire were check lists of favorable and unfavorable traits. The traits most frequently checked as liked in the teachers were as follows:

School I

1. Is always fair to students
2. Knows his subject
3. Has high ideals and good character

School II

1. Is always fair to students
2. Knows his subject
3. (a) Is always courteous
   (b) Is always a gentleman, or lady

School III

1. Knows his subject
2. Has high ideals and good character
3. Is always fair to students

These results show pupils of Schools I and II to have assigned first importance to a trait closely associated with direct teacher-pupil relationships, while in School III first place was given to a more specifically academic or professional trait. It is noteworthy that in all three schools, traits associated primarily with personal and social relationships between teachers and pupils were given a prominent place in the ratings,—a result which is in harmony with the results of earlier studies dealing with teacher traits especially liked by pupils.

By way of summarizing differences in the social attitudes of pupils in the three schools, it should be observed that the differences were largest on questions dealing with teachers' smoking, pupils' desires for teacher help

on personal problems, pupils' disillusionment in the matter of teacher character, sex of favorite teachers, and in the most-liked teacher traits. In attitude toward their teachers, as measured by the Remmers Attitude Scale, only a slight difference among the three schools appeared in the average rating assigned to all teachers. In School I this composite average rating was 8.89, in School II it was 8.80, and in School III it was 8.68. On the supplementary sheet used with the Remmers Scale, the average score was 13.75 for teachers of School I, 13.41 for teachers of School II, and 13.01 for teachers of School III.

Although some discrepancy was evident in the ratings assigned to the individual teachers on these two instruments, it does not appear that there were significant differences among the schools.

A measure of the social information of pupils was sought by use of the Wood Right Conduct Test, which has been described in an earlier chapter. Although it is not claimed that this test represents a complete sampling of social information, it appears to deal with a representative type of social information of the sort one would expect to find useful for high-school pupils.

In order to discover whether there were differences in the social information of pupils among the three high schools studied in this investigation, the results secured on Wood's Right Conduct Test were compared in terms of average scores. Averages for the three schools appear in Table VI. The average scores for classes and sexes separately in each school are contained in the Appendix of the original thesis.*

TABLE VI

MEAN SCORES ON WOOD'S RIGHT CONDUCT TEST

	School I	School II	School III
Boys	91.19	89.79	90.07
Girls	91.83	91.91	90.82
All pupils	91.56	90.92	90.39

It is apparent from Table VI that there is a close similarity among the three schools in the scores earned on the Wood Right Conduct Test. Since the range of differences is scarcely more than one point, it seems unlikely that the slight superiority of School I over Schools II and III is significant.

* On file, Library, University of Wisconsin.

The term "Social behavior" is as broad in its application as all human relationships. Therefore, we can not hope to measure it adequately in any single test or other form of measuring instrument. Although the present investigation is concerned only with the social behavior of high-school pupils and their teachers, the problem of securing data in even this limited field proved very difficult. Practical considerations led to the choice of the rating method. Ratings were secured of a representative sampling of pupils in two of the three cooperating schools. These ratings were made by the use of the Jones Observational Scale for Rating Citizenship at School, which has already been described. Twenty-one pupils in School I, and fourteen pupils in School II, were rated on this instrument by their teachers. Table VII shows the average ratings assigned in October to those pupils. Ratings for individual pupils appear in tabular form in the Appendix of the original thesis.

A considerably higher rating was assigned by the teachers of School II to the pupils, than was assigned by the teachers of School I, as is apparent from Table VII. It may be that variable subjective standards on the part of the teachers produced this difference. However, it may be remarked that there seemed evident in School II, on the several occasions of the writer's visits to the school, a uniformly high standard of courteous and disciplined behavior.

There is also evident from Table VII a definite tendency for girls to be rated higher than boys. Whether this tendency is to be attributed to sex differences on codes of conduct, to the nature of the items on the rating scale used, or to other causes, is uncertain. The writer inclines to the view that both factors suggested above were responsible.

To summarize the evidence with regard to social adjustment, the data obtained showed a rather definite tendency to distinguish the three schools studied, and to place them in a constant rank order, even though the differences are not statistically significant. Differences shown were largest between Schools II and III, with School I usually a close second to School II. Although these differences were not uniform, they recurred with a frequency which was noteworthy. In the matter of pupils' social attitudes, differences among the schools were found to be generally small,

TABLE VII

RATINGS OF PUPIL SOCIAL BEHAVIOR

School I			School II		
Boys	Girls	Both	Boys	Girls	Both
104.63	118.6	111.28	129.12	147	139.78

with the largest occurring on items dealing with teachers' smoking, pupils' desires for help from teachers on personal problems, pupils' disillusionment in the matter of teacher character, the sex of favorite teachers, and the traits most admired in teachers. In social information, no significant differences were indicated by the data. In social behavior as measured, considerable differences appeared between the two schools from which ratings were available, these differences being most favorable to School II.

The teachers included in the present study were asked to fill out the Washburne Social Adjustment Inventory and the Bell Adjustment Inventory, as measures of social adjustment. Table VIII shows the average scores of the teachers of the Washburne Social Adjustment Inventory, for each element of the Inventory as well as for the Total.

TABLE VIII

TEACHERS' SOCIAL ADJUSTMENT SCORES ON THE WASHBURNE SOCIAL ADJUSTMENT INVENTORY

Washburne Scores	School I	School II	School III
"t"	8.44	13.2	17.66
"a"	10.33	5.6	10.33
"a"	10.44	3.6	9.66
"p"	35.11	33.6	45.33
"i"	1.22	2.4	.66
"e"	5.44	1.4	12.33
"h"	2.11	3.6	.66
Total	376.88	386.6	353.33

It will be observed that the average total score of the teachers of School II is 10 points higher than the average for School I, and 23 points higher than in School III. While this is not a large difference, it acquires added significance when it is remembered that the average social adjustment scores of the pupils in School II were likewise higher, as measured by this same instrument.

It will be further observed that average teacher scores on the separate elements of the Washburne Inventory show differences among the three schools. It should be recalled that low scores on these separate elements indicate more favorable adjustment than high scores. Thus the teachers of School I are found to score lowest (most favorably) on the "t" or "truthfulness" element, with Schools II and III following in that order. Examination of scores on the other elements of the Inventory will show School II to stand first in four instances, and School III in two. It would, therefore, appear that differences among the schools do exist with relation to the social adjustment of teachers, as measured by the Washburne Social Adjustment Inventory.

Table IX shows the average scores of teachers in all three schools on separate sections and the total of the Bell Adjustment Inventory.

TABLE IX

TEACHERS' SOCIAL ADJUSTMENT SCORES ON THE BELL INVENTORY

Bell Inventory	School I	School II	School III
Home	2.22	3.2	5.00
Health	8.33	8.6	11.00
Social	9.00	6.4	10.66
Emotional	7.11	4.8	7.66
Total	26.66	23.0	34.33

As on the separate elements of the Washburne Inventory, the low scores are evidence of most favorable adjustment. From the point of view of general adjustment, as indicated by the total scores, the teachers of School II again appear most favorably among the three schools studied. Although School I teachers showed a slight advantage in Home and Health adjustment, teachers of School II appear to greatest advantage on the Social and Emotional adjustment elements of the Inventory. School III teachers have scores indicating least favorable adjustment on each of the four elements of the Inventory. So far as the evidence from these two inventories is concerned, it would appear that there are differences among schools in the social adjustment of the teachers.

In order to secure a sampling of teacher attitudes, teachers cooperating in this study were asked to fill out a Teacher Questionnaire by responding to each of 37 items with "Yes",

"no", or "?". While the items of this questionnaire were not all concerned with attitudes, responses on all items are presented in Table IX, in terms of the percentage of the entire group for each school giving each answer.

Item 5 reveals a significant tendency for teachers to feel that pupils expect them to be models of desirable conduct, the percentage of responses indicating such an opinion having been 88, 100, and 66 for the teachers of Schools I, II, and III, respectively. Some difference of opinion on this point is obvious, however, particularly as between Schools II and III.

Item 8 indicates that nearlv half the teachers of School I, and two-thirds of those of School III are sufficiently unhappy in their profession to wish to leave it, should a satisfactory alternative present itself. But only one-fifth of the teachers in School II gave such an indication.

Item 13 shows unanimous agreement among the teachers that the school has an obligation to educate for character.

Although according to the responses on Item 15, all the teachers agree that they should try to prevent cheating in the classroom, Item 16 shows that nearly half the teachers in School I feel that cheating occurs frequently in the school. Teachers of Schools II and III do not seem to have such an opinion.

Item 20 indicates unanimous agreement among the teachers that, when they themselves were students, they liked certain teachers much better than others.

Item 21 indicates that approximately half the teachers of Schools I and II, but none in School III, attributed such preferences to professional qualities. Item 22 shows 55%, 60%, and 100% in Schools I II and III, respectively, attributing such preferences to personal qualities in their former teachers.

TABLE X

TEACHERS' SOCIAL ATTITUDES

Item No.	Question	School I			School II			School III		
		Yes	No	?	Yes	No	?	Yes	No	?
1.	Do you believe that the teacher's example has an important bearing on pupils' conduct?	100	0	0	80	20	0	68	33	0
2.	Do you feel that teachers ought to participate in church activities in the community?	67	11	11	60	0	40	33	33	33
3.	Do you participate in church activities in your community?	55	33	11	60	40	0	33	66	0
4.	Have you ever felt that certain students were following you example in conduct and ideals?	77	0	22	80	0	20	66	33	0
5.	Do you think that students generally expect teachers to be models of good conduct?	88	0	11	100	0	0	66	33	0
6.	Are the students in your school generally friendly, and willing to meet you half-way?	100	0	0	100	0	0	100	0	0
7.	Are there a few students who are exceptions to this rule?	77	11	11	80	20	0	100	0	0
8.	Would you like to quit the teaching profession if other satisfactory employment were available to you?	44	55	0	20	60	20	66	33	0
9.	Do you find that most students are interesting to know personally?	100	0	0	100	0	0	100	0	0
10.	Do you dislike any students intensely?	0	100	0	0	100	0	33	66	0
11.	Do you enjoy using some of your time to help students in solving their personal problems?	100	0	0	100	0	0	100	0	0
12.	Do you use as much as one hour per week in this way?	66	33	0	80	20	0	66	0	33
13.	Do you feel that the school has an obligation in the matter of character education?	100	0	0	100	0	0	100	0	0
14.	Does your school have a definite program of character education?	33	33	33	60	40	0	0	100	0
15.	Do you feel it your duty to try to prevent cheating in the classroom?	100	0	0	100	0	0	100	0	0
16.	Do you believe that cheating occurs frequently in your school?	44	44	11	0	100	0	0	100	0
17.	Dou you approve of students' smoking?	0	88	11	0	100	0	0	100	0
18.	Is smoking a common practice among the students in your school?	55	11	33	0	80	20	33	33	33

TABLE X—Continued

Item No.	Question	School I			School II			School III		
		Yes	No	?	Yes	No	?	Yes	No	?
19.	Are the students in your school reasonably courteous and mannerly?	100	0	0	100	0	0	66	33	0
20.	In your own experience as a student, did you have certain teachers whom you liked much better than others?	100	0	0	100	0	0	100	0	0
21.	Was this liking for certain teachers based on their superior professional ability or qualities?	55	33	11	40	60	0	0	100	0
22.	Was this liking based on personal rather than professional qualities?	55	22	22	60	40	0	100	0	0
23.	Was your favorite teacher of your own sex?	77	22	0	80	20	0	33	66	0
24.	Do you feel that your favorite teacher or teachers exercised an important influence on your social attitudes, ideals and behavior?	100	0	0	80	20	0	33	66	0
25.	Do you approve of smoking on the part of teachers?	11	44	33	40	40	20	100	0	0
26.	Do you smoke, wither in public or at home?	22	66	11	0	100	0	66	33	0
27.	Are teachers who smoke employed in your school?	77	11	11	0	60	40	100	0	0
28.	Does your community in general approve of teachers' smoking?	0	11	88	0	40	60	0	66	33
29.	Do you approve of teachers' use of alcoholic drinks?	11	66	11	0	100	0	0	66	33
30.	Do you use alcoholic drinks?	11	77	11	0	100	0	0	100	0
31.	Does your community approve of drinking on the part of teachers?	0	55	44	0	80	20	0	100	0
32.	Do you approve of dancing on the part of teachers?	100	0	0	100	0	0	100	0	0
33.	Do you dance?	100	0	0	80	20	0	100	0	0
34.	Does your community approve of teachers' dancing?	44	0	55	100	0	0	100	0	0
35.	Do you approve of card-playing?	100	0	0	100	0	0	100	0	0
36.	Do you engage in card-playing?	88	11	0	80	20	0	100	0	0
37.	Does your community approve of teachers' card-playing?	55	0	44	100	0	0	100	0	0

Note: Figures show percentage of teachers giving each response on Teacher Questionnaire.

Responses to Item 24 indicate that all the teachers of School I, four-fifths of those in School II, but only one-third of those in School III, believed that their favorite teachers had been influential in shaping their social attitudes, ideals, and behavior.

Considerable difference of opinion appears in the responses to Item 25, which was concerned with attitude toward the practice of smoking on the part of teachers. One-tenth of the teachers in School I, two-fifths in School II, but all those in School III expressed approval of this practice. How far this result is an indication of honest opinion, and how far it merely reflects the teachers' personal habits, is a question which may be partially answered by referring to the responses on Item 26, in which one-fifth of the teachers in School I, none in School II, and two-thirds in School III indicate that they indulge in the habit of smoking.

According to the responses to Item 29, all of the teachers in School II, but only two-thirds in Schools I and II disapproved teachers' use of alcoholic drinks.

In the matter of their social attitudes as indicated by response to items on the Teacher Questionnaire, therefore, the chief differences among teachers of the three schools cooperating in the present study were those relating to:

1. Attitude toward the teaching profession
2. Attitude toward the probability of pupils' cheating
3. Attitude toward the significance of former teachers' influences on their social attitudes, ideals and behavior
4. Attitude toward teachers' smoking
5. Attitude toward teachers' use of alcoholic drinks

In order to secure data on the social information of the teachers, they, too, were asked to take Wood's Right Conduct Test. It appears from the average scores as presented in Table XI that this test was probably too

elementary for teachers, and that it yielded a somewhat inadequate indication of their social information. Since the highest possible score was 100, an average score of 97 indicates that the test was relatively easy.

TABLE XI

TEACHERS' MEAN SCORES ON WOOD'S RIGHT CONDUCT TEST

Wood's Test	School I	School II	School III
Number of Teachers	9	5	3
Ave. Score	97.44	97.20	97.33

These average scores of the teachers on this test are not only very high, but so nearly equivalent from school to school as to reveal no differences worthy of mention.

Of course it is practically impossible to secure a complete picture of the social behavior of any normal adult, without taking careful and complete account of every human contact and relationship in which he has a part. Because of its possible relationship to pupils' social behavior, however, an attempt has been made in this investigation to secure, by means of the Teacher Questionnaire, limited data in this area. Table XII gives the results of the Questionnaire to Teachers on those items concerned with five specific types or forms of social behavior.

TABLE XII

ASPECTS OF TEACHERS' SOCIAL BEHAVIOR

Form of Soc. Behavior	School I % Reporting	School II % Reporting	School III % Reporting
Participation in Church Activities	55	60	33
Smoking	22	0	66
Use of Alcoholic Drinks	11	0	0
Dancing	100	80	100
Playing Cards	88	80	100

It appears from these results that the chief differences among the teachers of the three schools in the matter of their participation in the specified forms of social activity occur with relation to participation in church activities and to indulgence in the practice of smoking. More than half the teachers of Schools I and II report participation in church activities, but only one-third of those in School III report such participation. Approximately one-fifth of the teachers in School I, none in School II, and two-thirds in School III report that they practice the smoking habit. Aside from these differences, the data secured do not indicate large differences among the teachers of the three schools in those forms of social behavior listed in Table XII.

The present chapter has sought to interpret the data secured in this investigation with reference to differences among high schools in the social adjustment, attitudes, information, and behavior of the pupils and teachers. Evidence was presented to indicate that differences did exist among the three schools on the following items:

1. With relation to the social adjustment of pupils
2. With relation to the social attitudes of pupils
3. With relation to the social behavior of pupils
4. With relation to the social adjustment of teachers
5. With relation to the social attitudes of teachers
6. With relation to the social behavior of teachers

It is not intended that this evidence shall be taken as having established the existence of such differences in general, but only as indicating that, under the conditions of the present study, and in the particular schools studied, differences of the kinds indicated do exist, although most of them are too small to be statistically significant.

SECTION IV

RELATIONS BETWEEN TEACHERS AND PUPILS IN SOCIAL ADJUSTMENT, ATTITUDES, INFORMATION AND BEHAVIOR

This chapter will attempt to explore the relationships between the social adjustment, attitudes, information, and behavior of pupils, and the same qualities in their teachers. The Washburne Social Adjustment Inventory, was applied to both teachers and pupils. The relative ranking of the pupils and teachers for each school with respect to the other two schools, in terms of average scores by parts as well as total scores on the Washburne Inventory is shown in Table XIII.

TABLE XIII

COMPARATIVE RANKING OF TEACHERS AND PUPILS IN SOCIAL ADJUSTMENT

Washburn Inventory	School I		School II		School III	
	Pupils	Teachers	Pupils	Teachers	Pupils	Teachers
"t"	1	1	3	2	2	3
"a"	2	3	1	1	3	2
"s"	2	2½	1	1	3	2½
"p"	2	2	1	1	3	3
"i"	3	2	2	3	1	1
"c"	2	2	1	1	3	3
"h"	1	2	3	3	2	1
Total	2	2	1	1	3	3
Summary of Rankings	13	14	12	12	17	15½

The striking fact about Table XIII is that so many teachers and pupils fall into the same rank-position in social adjustment. The pupils of School II earned a higher average score on the total Inventory than the pupils of either of the other schools, and the same is true of their teachers. The same relationship holds for elements "p" and "c". The pupils and teachers within a single school fall into the same rank-position in a particular element in four additional instances, as is illustrated by the position of pupils and teachers of School I on the "t" element of the Inventory. Still further evidence of relationship between pupils' and teachers' social adjustment is seen in the fact that in only one case was the disparity in rank between them greater than one. In the "Summary of Rankings", it will be observed that both pupils and teachers in each school occupy the same relative positions in relation to other schools.

It would seem, therefore, that the evidence for social adjustment indicates a noticeable tendency for pupils' and teachers' scores to be positively correlated with each other.

Data from the Teacher Questionnaire make possible a number of interesting comparisons of the social attitudes of pupils and teachers.

Item I of the Teacher Questionnaire, "Do you believe that the teacher's example has an important bearing on pupils' conduct?", was very similar to Item 25 on the Student Questionnaire, "Do you believe that character and personality of the teacher have any important influence on students?" Affirmative responses on these items may be regarded as essentially equivalent to each other. Table XIV shows the percentage of each group giving each possible response on these items.

TABLE XIV

TEACHER AND PUPIL OPINION RELATIVE TO THE TEACHER'S EXAMPLE

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 25—Pupils	95	4	1	95	2	3	96	2	2
Item 1—Teachers	100	0	0	80	20	0	66	33	0

It will be noted, that, while the pupils are almost unanimous in their affirmative responses on this question, the percentage of affirmative responses from the teachers ranges from 100 to 66. So far, therefore, as attitudes on this item are concerned, the data show that pupils and teachers tend toward the same

TABLE XV

TEACHER AND PUPIL OPINION ON PUPILS' TENDENCY TO EMULATE TEACHERS

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 16—Pupils	61	36	3	64	31	5	46	48	6
Item 4—Teachers	77	0	22	80	0	20	66	33	0

Note: Figures show percentages of each response.

affirmative opinion, but there is no evidence of a positive correlation of opinion between the two groups.

Item 4 on the Teacher Questionnaire, "Have you ever known students to try to be like some teacher whom they especially admired?", is similar to Item 16 on the pupil questionnaire. Responses of both groups are shown in percentages in Table XV. It will be noted that both pupils and teachers in School II show the largest proportion of affirmative answers on this point, with Schools I and III in second and third positions, respectively. There seems to be some positive relationship between the two responses.

Item 13 on the Teacher Questionnaire and Item 24 on the Student Questionnaire deal with attitude toward the school's responsibility for character education. Table XVI gives the percentage of each possible response for each group. Since the teachers were unanimously agreed on this point, no relationship between pupils' and teachers' attitudes can be deduced. It is noteworthy, however, that so large a proportion of both groups believe that the school has such a responsibility, even though few schools have any systematic plan or program for discharging it.

Item 15 on the Teacher Questionnaire, "Do you feel it your duty to try to prevent cheating in the classroom?", was very similar to Item 23 on the Student Questionnaire, "Do you think that cheating is seriously wrong?". Table XVII shows the responses on this point. Again we find that the teachers' responses were unanimously in the affirmative, as was probably to be expected but the pupils are apparently not so sure that cheating is seriously wrong. No relationship between pupils' and teachers' attitudes in the matter is evident, except that both tend on the whole to be definitely opposed. It is interesting to observe that the pupils of School II, who scored least favorably on the "t" or "truthfulness" element of the Washburne Social Adjustment Inventory, also appear least certain that cheating is wrong.

Questions 17 on the Teacher Questionnaire and 20 on the Student Questionnaire were identical, "Do you approve of students' smoking?". The responses are shown in Table XVIII. No consistent relationship between the attitudes of teachers and pupils on this question seems evident from the responses.

Item 4 on the Student Questionnaire and Item 25 on the Teacher Questionnaire deal

TABLE XVI

THE SCHOOL'S OBLIGATION FOR CHARACTER EDUCATION

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 24—Pupils	87	5	8	93	2	5	75	7	18
Item 13—Teachers	100	0	0	100	0	0	100	0	0

Note: Figures show percentages of each response.

TABLE XVII

ATTITUDES TOWARD PUPILS' CHEATING

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 23—Pupils	90	5	5	79	12	9	89	4	7
Item 15—Teachers	100	0	0	100	0	0	100	0	0

Note: Figures show percentages giving each response. "Yes" indicates that cheating is felt to be seriously wrong.

TABLE XVIII

ATTITUDES TOWARD PUPILS' SMOKING

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 20—Pupils	13	77	10	11	74	15	12	70	18
Item 17—Teachers	0	88	11	0	100	0	0	100	0

Note: Figures show percentages of each response.

with attitude toward the practice of smoking on the part of teachers. Table XIX shows the responses for both groups, as usual in terms of percentages. It appears that the largest percentage of pupil approval for teachers' smoking occurs in the case of School III, which also shows the largest percentage of teacher approval of the practice. Otherwise the responses do not indicate a relationship between the attitudes of pupils and teachers on this point.

TABLE XIX

ATTITUDES TOWARD TEACHERS' SMOKING

	School I			School II			School III		
	Yes	No	?	Yes	No	?	Yes	No	?
Item 4—Pupils	33	57	10	16	65	19	46	36	12
Item 25—Teachers	11	44	33	40	40	20	100	0	0

Note: Figures show percentages of each response.

It is not surprising that the degree of relationship between the social attitudes of teachers and those of pupils varies from area to area, from school to school, and from question to question. Perhaps if these attitudes were compared with respect to other questions than those considered here, a very different sort of relationship would have been indicated. Even within the limits and under the conditions of the present investigation, however, there is evidence that teachers' attitudes may be reflected to some degree in the attitudes of their pupils or both may reflect some common social pattern.

In social information, as measured by the Wood's Right Conduct Test, no relationship is apparent between teachers and pupils, as will be seen from an examination of the average scores presented in Table XX. The average scores of pupils and teachers vary so slightly from school to school as to indicate that the differences in social information are negligible, or that the test used did not reveal them.

The present chapter has attempted to discover relationships between teachers' and pupils' social adjustment, attitudes, information, and behavior, as measured in this investigation. Evidence was presented which seemed to indicate a positive relationship between the two groups in social adjustment, and in certain attitudes. In social information and social behavior, on the other hand, the data available failed to show such relationships. It is the opinion of the writer that the techniques used were at least partly responsible for the latter result.

SECTION V

CHANGES IN PUPILS' SOCIAL ADJUSTMENT, ATTITUDES, INFORMATION AND BEHAVIOR

The problem of the present chapter is to discover whether changes in the social adjustment, attitudes, information, and behavior of pupils, occurring over a six months' period appeared to be related to the social adjustment, attitudes, information and behavior of teachers. Many persons believe that the social impact of the teacher on the pupil makes itself felt so gradually and imperceptibly as to show no significant change in so short a period as six months, under ordinary school conditions. This opinion appears to be partly justified on the basis of the data secured in the present investigation.

For the purposes of this chapter, pupil gains or losses in each area as indicated by differences between the initial and final scores, were tabulated for each school and grade, and for boys and girls separately. The ranks for the Washburne Social Adjustment Inventory in October and April, are shown in Table XXI. In 15 cases of a possible 24, the social adjustment scores of pupils placed them in

TABLE XX

TEACHERS' AND PUPILS' SOCIAL INFORMATION
(Scores on Wood's Right Conduct Test)

	School I	School II	School III
Pupils	91.56	90.92	90.39
Teachers	97.44	97.20	97.33

TABLE XXI

INITIAL AND FINAL SOCIAL ADJUSTMENT RANK ON THE WASHBURNE INVENTORY

Washburne Inv.	School I Pupils Initial	School I Pupils Final	School I Teachers	School II Pupils Initial	School II Pupils Final	School II Teachers	School III Pupils Initial	School III Pupils Final	School III Teachers
"t"	1	1	1	3	3	2	2	2	3
"s"	2	2	3	1	1	1	3	3	2
"a"	2	1	3	1	2	2	3	3	1
"p"	3	2	2	1	1	1	2	3	3
"i"	3	2	2	2	3	3	1	1	1
"c"	2	2	2	1	1	1	3	3	3
"h"	1	2	2	3	1	3	2	3	1
Total	2	2	2	1	1	1	3	3	3
Summary of Rankings	16	14	17	13	13	14	19	21	17

the same rank-order in both the initial and final testings. In 9 of 24 ranks the rankings had changed. There is apparently, thus, a distinct tendency for pupil rankings to remain constant. It may be pointed out, however, that School I showed a net gain of two points in the rankings, School II neither gained nor lost, and School III showed a net loss of two points.

The gains are presented in Table XXII. Negative signs indicate less favorable adjustment; positive signs more favorable adjustment.

It may be surprising to find School II ranking lowest in gains, when it is recalled that they appear most favorably adjusted according to the results of the initial application of the Inventory. On the other hand, the very fact of their having scored high at first may account in part for their poor showing in terms of gains, since gains on the higher levels may have been more difficult to achieve. In total gains, pupils of School I show considerable superiority in this instance, with pupils of School III in second position.

In order to determine whether these gains were statistically significant, critical ratios were computed for the total scores on the Inventory in October and April. Table XXIII shows the results obtained.

The nearest approach to statistical significance is represented by gains for School I, where the critical ratio is 1.18. Even here there is a large possibility that the gains were

TABLE XXII

AVERAGE GAIN IN SOCIAL ADJUSTMENT SCORES

Washburne Inventory	School I Av. Gain	School I Rank	School II Av. Gain	School II Rank	School III Av. Gain	School III Rank
"t"	— .428	2	— .847	2	— .303	1
"s"	.827	2	.728	3	.928	1
"a"	3.095	1	— .898	3	1.250	2
"p"	.446	1	— .983	2	—1.303	3
"i"	.630	1	—1.203	3	— .089	2
"c"	2.005	1	1.372	2	— .500	3
"h"	.101	2	.440	1	— .045	3
Total	7.559	1	—2.796	3	2.839	2

TABLE XXIII

SIGNIFICANCE OF GAINS IN TOTAL WASHBURNE SCORES

Washburne Inventory	School I Oct.	School I April	School II Oct.	School II April	School III Oct.	School III April
N.	167	167	39	59	56	56
M.	334.5	339.2	343.8	341.0	331.3	334.3
S. D.	37.4	35.1	28.0	28.3	35.8	34.6
S. Dm.	2.90	2.73	3.68	3.71	4.82	4.67
P. E. score	7.14	6.69	5.34	5.39	6.83	6.60
Critical ratio	1.18		.53		.45	

TABLE XXIV

SIGNIFICANCE OF GAINS IN SYMONDS SCORES

	School I		School II	
	Oct.	April	Oct.	April
Number	223	223	71	71
Mean	3.56	2.97	3.29	3.12
S. Dev.	1.02	1.10	.878	1.09
S. D. mean	.067	.074	.105	.130
Critical Ratio	5.86		1.02	

Note: Data based on Symonds' "What Kind of a Year Are You Having?"

TABLE XXV

RELATION OF PUPIL GAINS TO TEACHER SCORES ON THE WASHBURNE SOCIAL ADJUSTMENT INVENTORY

	Grades 9 and 10		Grades 11 and 12		All Pupils	
	"Best" Teachers	"Poorer" Teachers	"Best" Teachers	"Poorer" Teachers	"Best" Teachers	"Poorer" Teachers
No. Pupils	18	25	42	20	60	45
Mean Gain	7.78	5.48	7.07	13.55	7.28	9.07
S. D.	27.06	23.10	29.51	21.40	28.79	22.76
Critical Ratio	.29		.96		.35	

due to chance factors. In Schools II and III, the gains were so small as to be without statistical significance.

Changes in mean scores on Symonds' "What Kind of a Year Are You Having?" for Schools I and II are shown in Table XXIV. Gains for School III were not available, since the instrument was applied only once in this school.

It will be observed that gains for School I on this instrument were well above the requirement for statistical significance, since the critical ratio of these gains was 5.86. This is a much more significant gain than appears for School II. No explanation for this difference in gain between the two schools is apparent to the writer. It may have been due to some factor or situation in School I which had no relation to the present study.

In order to show the relation between pupil gains and teacher status in social adjustment as measured by the Washburne Inventory, the pupils and teachers of School I were further grouped into upper and lower groups for comparative purposes.

The eight teachers having the best scores were put in the "Best" group and those having lowest scores in the "Poorer" group.

The pupils were assigned to groups, on the basis of whether the majority of their teachers fell into the "Best" or "Poorer" teacher groups. "Majority" is used here to mean two or more, since only three teachers for each pupil could be identified from the available data. Pupils were further subdivided into under-classmen (grades nine and ten), and upper classmen, (grades eleven and twelve). Differences in mean scores were then subjected to statistical treatment. Results are shown in Table XXV.

Strangely enough, the highest critical ratio found was for differences in grades eleven and twelve between pupils of "best" and "poorer" teachers, with the difference in favor of the latter. This difference is not, however, statistically significant. It is obvious that the technique used failed to show significant differences in mean gains in social adjustment scores made by pupils of well adjusted and less well adjusted teachers, as these are distinguished by scores on the Washburne Social Adjustment Inventory.

Data on the Student Questionnaire and the Remmers "Scale for Measuring Attitude Toward any Teacher", were available for pupils of Schools I and II. Tables XXVI and XXVII show the percentage of pupils giving each response to the items on the questionnaire in October and April, together with the net change on each item.

It is apparent that on most of the items of the Student Questionnaire, initial and final percentages of pupils giving each answer remained within a range of five per cent or less. It seems probable that changes as small as this are not especially significant. On certain

School I

TABLE XXVI

PERCENTAGE OF CHANGE IN STUDENT QUESTIONNAIRE ANSWERS

Quest. No.	Yes			No			?		
	Oct.	Apr.	Change	Oct.	Apr.	Change	Oct.	Apr.	Change
1	95	94	— 1	4	5	— 1	1	1	0
2	70	75	5	26	21	— 5	3	4	1
3	53	54	1	40	37	— 3	7	8	1
4	33	33	0	57	56	— 1	10	11	1
5	8	11	3	87	78	— 9	5	11	61
6	11	10	— 1	77	82	5	11	8	— 3
7	89	93	4	6	5	— 1	5	2	— 3
8	8	7	— 1	57	49	— 8	35	44	9
9	3	2	— 1	75	66	— 9	22	32	10
10	28	26	— 2	33	27	— 6	39	47	8
11	68	62	— 6	8	5	— 3	24	33	9
12	53	48	— 5	42	47	5	5	5	0
13	84	83	— 1	12	13	1	4	4	0
14	52	48	— 4	25	21	— 4	23	31	8
15	16	16	0	80	83	3	4	1	— 3
16	61	55	— 6	36	37	1	3	8	5
17	23	21	— 2	64	64	0	14	15	1
18	54	48	— 6	42	47	5	4	5	1
19	32	29	— 3	60	62	2	8	9	1
20	13	19	6	77	63	—14	10	18	8
21	60	64	4	15	9	— 6	25	27	2
22	33	21	—12	31	40	9	36	39	3
23	90	90	0	5	4	— 1	5	6	1
24	87	83	— 4	5	6	1	8	11	5
25	95	95	0	4	2	— 2	1	3	2
Total.....	1219	1187	78	968	929	105	312	383	89
Mean.....	48.76	47.48	3.12	38.72	37.16	4.2	12.48	15.32	3.56

School II

TABLE XXVII

PERCENTAGE OF CHANGES IN STUDENT QUESTIONNAIRE ANSWERS

Quest. No.	Yes			No			?		
	Oct.	Apr.	Change	Oct.	Apr.	Change	Oct.	Apr.	Change
1	95	95	0	4	5	1	1	0	— 1
2	70	75	5	26	22	— 4	4	3	— 1
3	45	41	—41	51	54	3	4	5	1
4	16	28	12	65	63	— 2	19	9	—10
5	0	4	4	90	85	— 5	9	11	2
6	9	10	1	76	81	5	15	9	— 6
7	94	96	2	2	4	2	4	0	4
8	4	0	— 4	52	44	— 8	44	56	12
9	0	0	0	69	61	— 8	31	39	8
10	32	25	— 7	26	22	— 4	42	53	11
11	74	68	— 6	7	4	— 3	19	28	9
12	55	52	— 3	45	44	— 1	0	4	4
13	84	81	— 3	11	15	4	5	4	— 1
14	51	46	— 5	31	41	10	18	13	— 5
15	19	22	3	77	75	— 2	4	3	— 1
16	64	58	— 6	31	38	7	5	4	— 1
17	16	16	0	75	73	— 2	9	11	2
18	46	48	2	48	49	1	6	3	— 3
19	30	32	2	54	62	8	16	6	—10
20	11	18	7	74	72	— 2	15	10	— 5
21	40	39	— 1	27	29	2	33	32	— 1
22	11	41	30	53	34	—19	36	25	—11
23	79	80	1	12	14	2	9	6	— 3
24	93	87	— 6	2	3	1	5	10	5
25	95	93	— 2	2	4	2	3	3	0
E=	1133	1155	116	1010	998	108	356	347	117
M=	45.32	46.2	4.64	40.4	39.92	4.32	14.24	13.88	4.68

items, however, a larger proportion of pupils gave different responses in April from those in October. Thus in School I, six per cent more pupils felt that their community approved of teachers' dancing than held that opinion in October. Responses on Item 16 indicate that six per cent more felt that some pupils try to emulate the qualities of favorite teachers. On Item 18, six per cent more responses were in the affirmative, indicating that more pupils recalled having been disappointed by the discovery that a favorite teacher was less admirable than they believed. Six per cent fewer pupils approved of pupils' smoking, according to the responses on Item 20, and twelve per cent more felt that cheating occurred commonly in their school, as indicated by the responses on Item 22. With these exceptions, pupil attitudes in School I as measured by items on the Student Questionnaire do not appear to have changed materially between October and April.

For the pupils of School II, it appears that twelve per cent more pupils approved of smoking (Item 4) on the part of teachers in April than in October. This result may be related to the fact that 40% of their teachers indicated similar approval. Seven per cent fewer pupils, (Item 10) felt that the community approved of card-playing for teachers. Six per cent fewer felt that the community approved of teachers' dancing (Item 11). Six per cent fewer pupils believed that some pupils emulate the qualities of favorite teachers (Item 16). Seven per cent more pupils indicated their approval of pupils' smoking (Item 20), although all their teachers had disapproved of the practice. Thirty per cent more pupils in April than in October felt that cheating occurred commonly in their school (Item 22). Six per cent fewer pupils felt that the school should educate for character (Item 24).

In School II as in School I, it is very difficult to discover relationships between the social attitudes of the teachers, and changes in pupils' social attitudes, from the data secured in the present investigation. The fact that most of the changes discovered in pupils' attitudes were very small may indicate that social attitudes of the type investigated change rather slowly, and are ordinarily not significantly affected by school experiences in six months.

Changes in social information were measured by the reapplication of Wood's Right Conduct Test. Differences between original and final scores were recorded on gain sheets, minus signs indicating losses. When these were totaled and the mean gain for each school determined, the gains were as follows:

School I	2.08
School II	3.11
School III	1.02

Not only were the differences in gains small, but it will be recalled that the initial average scores were very closely similar among the three schools. There does not appear to be any evidence for assuming that social information of pupils was affected during the experimental period by the social information of the teachers, as judged by the results obtained from the use of Wood's Right Conduct Test.

For those pupils of Schools I and II who were rated on the Jones Citizenship Scale by their teachers, several observations may be made with reference to differences between the initial and final ratings. In both schools, the second ratings resulted in somewhat lower scores for nearly all pupils rated. The mean loss per pupil was 10.03 points for School I, and 8.21 points for School II. When it is recalled that the average initial score for pupils from School I was 111.28 points, and that for School II 136.78, it is still more surprising that the second ratings were so uniformly lower (Table XXVIII).

The present section has been concerned with the gains made by pupils between October and April in social adjustment, attitudes, information, and behavior, compared with the social adjustment, attitudes, infor-

TABLE XXVIII

MEAN RATINGS ON THE JONES CITIZENSHIP SCALE: OCTOBER AND APRIL

School I—October			School I—April		
Girls	Boys	Total	Girls	Boys	Total
118.6	104.63	111.28	108.6	93.9	101.25
School II—October			**School II—April**		
Girls	Boys	Total	Girls	Boys	Total
147	129.12	136.78	139.83	120.12	128.57

mation, and behavior of teachers. On the whole, the data failed to reveal any significant relationship between pupil gains and teacher status in these areas. It may be, as was suggested earlier, that the interval was too short for significant and measurable changes in these areas to occur.

Section VI

Summary and Conclusions

The investigation here reported was concerned with the social impact of teachers upon pupils. While there have always been people in the educational field who were deeply interested in the social and personal development of pupils, only within recent years have we witnessed any wide spread interest in social and personal development as an important aspect of the education of all children. Various studies of teacher-pupil relationships have indicated that pupils at various grade levels exhibit definite tendencies to reflect the attitudes and behavior patterns of their teachers, and that the personal influence of teachers may be more permanently and vitally effective with pupils than their formal classroom teaching.

The purpose of this study was to survey the extent to which the social impact of the teacher on pupils might be observed in three concrete learning-teaching situations. The following facts seem clear from the study here reported.

1. When the pupils for three fairly typical small Wisconsin High Schools were tested by such instruments as the Symonds' *What Kind of a Year Are You Having?* and the Washburne *Social Adjustment Inventory* differences that approached statistical significance were found in one of the three schools.

2. Ninety-five per cent of the pupils in two of the schools and 91 per cent in a third school said that they admired some teachers more than others; about 50 per cent of the pupils in two schools and 29 per cent of the pupils in the third school had personal problems with which they wished teacher assistance, but only about 16 per cent in the two schools and 6 per cent in the third school ever asked for assistance.

3. About 50 per cent of the pupils in Schools I and II and 33 per cent in School III had been keenly disappointed upon learning that some teacher whom they had admired was less worthy of admiration than they had believed.

4. Approximately 95 per cent of the pupils thought that the teacher's character and personality had an important influence on students.

5. Fairness to students, knowledge of subject and high ideals are the qualities most frequently noted by students as essential to teaching success.

6. The Jones Observational Scale for Rating Citizenship at school was administered in two schools. School II made a decidedly higher score than School I in observed conduct. The scale was not administered in School III. All three schools showed about equal knowledge of right conduct as measured by the Wood Right Conduct Test.

7. The social adjustment scores for the teachers were highest for School II, second for School I and third for School III as measured by the Washburne Social Adjustment Inventory and the Bell Adjustment Inventory.

8. One hundred per cent of the teachers in School II, 88 per cent in School I, and 66 per cent in School III thought that the students generally expect teachers to be models of good conduct.

9. Thirty-three per cent of the teachers in School III, disliked some of their students intensely; none so reported for Schools I and II. Sixty-six per cent of the teachers of School III and 100 per cent for Schools I and II thought that the pupils were reasonably courteous.

No statistically significant relationships were found between gains in these qualities in pupils and the amounts possessed by the teachers as measured in this investigation.

It is generally recognized that changes in social attitudes and behavior take place only slowly under normal conditions, and this fact may explain the lack of statistically significant relationships between pupil gains and teacher status for the qualities measured. The agreement in initial status of teachers and pupils may have arisen out of the longer period through which these qualities had been allowed to operate or they may have been determined by some common factors such as the selection of teachers operating in the communities studied. As far as this study contributes to the validation of teacher induced pupil gains in the social aspects of teaching efficiency, the results were negative.

STUDY OF ACHIEVEMENT IN EDUCATIONAL PSYCHOLOGY*

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Teacher training institutions have long been concerned with the improvement of teacher education practices. The evaluation and prediction of teaching efficiency is of particular concern because progress in this area leads to the possibility of making wiser decisions relative to the selection, training and education of teachers. It seems reasonable to assume that certain qualities and abilities prerequisite to teaching success are present and measurable during the pre-service training program; if these could be discovered, the guidance of teacher training candidates could be vastly improved. It is not presumed that it will be possible to make individual predictions of teaching success with any high degree of certainty at present; but if measures could be discovered which would narrow the range of prediction, the effort expended in their discovery would be eminently worth while.

STATEMENT OF THE PROBLEM

The study here reported is an attempt to evaluate the work in four sections of a course in educational psychology. The study was conducted in connection with a course in The Nature and Direction of Learning, Department of Education, University of Wisconsin, during the academic year 1942–1943 using a study group of one hundred students during the first semester and seventy-six students in the second semester. Education 75, The Nature and Direction of Learning, is the third course in the required undergraduate education sequence. The work of the course consists of two parts, (1) a study of principles of teaching and learning under the guidance of a lecture-discussion instructor, and (2) student participation in teaching at the Wisconsin High School under the direction of a critic teacher.

More specifically the purposes of the study are:

I. In the prediction of teaching efficiency.

A. To discover the relationship between practice teaching success as estimated by practice teaching marks and measures considered prerequisite for teaching success.

B. To discover interrelationships among certain measures considered prerequisite for teaching success.

C. To determine the coefficient of multiple correlation to be obtained from a team of factors selected from data available during the pre-service training program and to determine the weighting to be assigned each factor as a beta coefficient for purposes of prediction.

II. In the evaluation of two new type tests of professional attainment.

A. To make a preliminary evaluation of the general worth of a new type Principles Test.

B. To make a preliminary evaluation of the general worth of a new type Professional Judgment Test.

C. To determine the possibility of constructing valid and reliable measuring instruments of the general nature of the two experimental tests used in the present study.

III. Comparison of the achievement of class sections under different instructors.

A. To discover differences in performance among the four class sections which might be attributed to differences in the philosophy, interests, and teaching procedures of the lecture-discussion professors.

B. To discover whether change scores on the Gates Test in the four sections of Education 75 during the second semester study are significant.

C. To investigate student rating of the instructors in Education 75 and student evaluation of the course.

* The writer wishes to express her appreciation for the assistance and encouragement given in this investigation by Professor A. S. Barr, University of Wisconsin.

Related Investigations

Evaluation in teacher education.—One of the most complex problems in education today is that of evaluation. There is general agreement among educators that evaluation must be made in terms of the objectives toward which the educational program is directed. Orata emphasizes that a comprehensive program of evaluation should give evidence not merely of the amount of information acquired by pupils, but the degree to which all of the objectives of the school program are realized.[1] Raths expresses the same point of view. He criticizes many present day evaluation programs as being too narrowly conceived and advocates broadening the program to include information about more significant aspects of student behavior.[2] Corey discusses the importance of using the development of children as the criterion of teaching efficiency. He describes certain technical teaching competencies essential for stimulating pupil growth.[3] Woody suggests that the first step in evaluation of teacher education is to determine the nature of the behavior of students indicative of the realization of the values desired in democratic living.[4] Barr comments upon the difficulty of measuring teaching success because of the many variables which complicate the problem and the inadequacy of our measuring instruments.[5] Scates points out important differences between measurement in pure science and measurement in the classroom.[6] Troyer recommends more teacher self-appraisal of progress towards goals.[7] Lorge defines appraisal as a value judgment about the goodness of change and calls attention to the necessity of individualizing objectives in education in accordance with the individual differences of students.[8]

Studies in pre-service prediction of teaching efficiency.—Educational literature contains reports of numerous studies in which attempts have been made during the pre-service training program to predict later teaching success. Intelligence, academic achievement, social and emotional adjustment, participation in extra-curricular activities, scores on professional tests, and practice teaching marks are among factors which have been studied.

Several studies have been made of the prognostic value of intelligence tests. From a study at Colorado State Teachers College, Whitney and Frasier concluded that there is little relationship between intelligence, as measured by tests, and student teaching success and that intelligence tests are not good measures of "teaching intelligence."[9] Boardman and Breckenridge also concluded that the correlation between intelligence and teaching success is not sufficiently high to have predictive value.[10, 11] Major found a percentile rank of thirty on the Ohio State University Psychological Test representative of sufficient intelligence for successful teaching.[12] In their study of teachers in service Rostker and La Duke found that intelligence of teachers is significantly related to teaching efficiency.[13, 14]

The prognostic value of academic marks has been studied by Madsen, Whitney, and Wagenhorst. There is general agreement in these studies that scholarship is a factor in teaching success, but the studies disagree as to its relative importance.[15, 16, 17] Stuit con-

[1] Pedro T. Orata, "Evaluating Evaluation," *Journal of Educational Research*, Vol. XXXIII (May, 1940), 641–661.

[2] Louis Raths, "Basis for Comprehensive Evaluation," *Educational Research Bulletin*, Vol. XV (November, 1936), 220–224.

[3] Stephen M. Corey, "Evaluating Technical Teaching Competence," *Elementary School Journal*, Vol. XVI (April, 1941), 577–586.

[4] Clifford Woody, "The Evaluation of a Program of Teacher Training," *Journal of Educational Research*, Vol. XXXIV (May, 1941), 693–695.

[5] A. S. Barr, "The Measurement of Teaching Ability," *Journal of Educational Research*, Vol. XXVIII (April, 1935), 461–560.

[6] Douglas E. Scates, "Differences Between Measurement Criteria of Pure Scientists and Classroom Teachers," *Journal of Educational Research*, Vol. XXX (September, 1943), 1–13.

[7] Maurice E. Troyer, "Self-Evaluation in Teacher Education," *Journal of Educational Research*, Vol. XXV (March, 1942), 528–543.

[8] Irving Lorge, "Evaluation: the New Stresses on Measurement," *Teachers College Record*, Vol. XLII (May, 1941), 667–679.

[9] H. Whitney and G. W. Frasier, "The Relation of Intelligence to Student Teaching Success," *Peabody Journal of Education*, Vol. VIII (July, 1930), 3–6.

[10] C. W. Boardman, "Professional Tests as Measures of Teaching Efficiency," *Teachers College Contribution, No. 327;* Teachers College, Columbia University, 1928.

[11] E. Breckenridge, "Study of the Relation of Preparatory School Records and Intelligence Test Scores to Teaching Success," *Educational Administration and Supervision*, Vol. XVII (December, 1931), 649–660.

[12] C. L. Major, "The Percentile Ranking on the Ohio State University Psychological Test as a Factor in Forecasting the Success of Teachers in Training," *School and Society*, Vol. XLVII (April 30, 1938), 582–584.

[13] Leon Rostker, "The Measurement and Prediction of Teaching Ability," *School and Society*, Vol. LI (January 6, 1940), 30–32.

[14] Charles V. La Duke, "The Measurement of Teaching Efficiency," Unpublished Doctors' thesis, University of Wisconsin, 1941.

[15] I. N. Madsen, "The Predicting of Teaching Success," *Educational Administration and Supervision*, Vol. XIII (January, 1927), 39–47.

[16] F. L. Whitney, "The Intelligence, Preparation, and Teaching Skill of State Normal Graduates in the United States," Unpublished Doctor's thesis, University of Minnesota, 1922.

[17] L. H. Wagenhorst, "Relation Between Ratings of Student-Teachers in College and Success in the First Year Teaching," *Educational Administration and Supervision*, Vol. XVI (April, 1930), 249–253.

cludes that scholarship is a more important factor in teaching success than the statistical data would indicate, but that scholarship alone does not insure teaching success.[18] Anderson reports a study from which he concluded that there is low correlation between academic achievement and teaching success.[19]

Hatcher concluded that ten qualities of personality which she studied and practice teaching are more closely allied than are scholarship and practice teaching.[20] Neel and Mead found a correlation of .69 between personality ratings obtained on the Sorenson blank and success in student teaching.[21] Green and Staton found low correlation between tests of adjustment and measures of teaching ability.[22]

Shannon reported a study dealing with the prognostic value of participation in extracurricular activities. He concluded that there is no more dependable indication of a prospective educator's success than his participation in his college's worthy extracurricular activities.[23]

Current literature contains several articles dealing with one of the recent developments in the prognosis of teacher efficiency, namely, the introduction of the National Teachers Examinations.[24] The prognostic value of these professional examinations has not as yet been determined.

[18] Dewey B. Stuit, "Scholarship as a Factor in Teaching Success," *School and Society*, Vol. XLVI (September 18, 1937), 382–384.

[19] H. J. Anderson, "Correlation Between Academic Achievement and Teaching Success," *Elementary School Journal*, Vol. XXXII (September, 1931), 22–29.

[20] Mattie L. Hatcher, "Qualities of Personality Compared with Success in Practice Teaching," *Peabody Journal of Education*, Vol. XI (May, 1934), 246–253.

[21] M. O. Neel and A. K. Mead, "Correlations Between Certain Group Factors in the Preparation of Secondary School Teachers," *Educational Administration and Supervision*, Vol. XVII (December, 1931), 675–676.

[22] J. E. Greene and T. F. Staton, "Predictive Value of Various Tests of Emotionality and Adjustment in a Guidance Program for Prospective Teachers," *Journal of Educational Research*, Vol. XXXII (May, 1939), 653–659.

[23] John Shannon, "A Comparison of Highly Successful Teachers, Failing Teachers and Average Teachers at the Time of Their Graduation from Indiana State Teachers College," *Educational Administration and Supervision*, Vol. XXVI (January, 1940), 43–51.

[24] J. E. Criswell, "The National Teacher Examinations," Phi Delta Kappan, Vol. XXIV (May, 1942), 353–356.
Frederick B. Davis, "The Measurement of Professional Information Among Candidates for Teaching Positions," *Educational Administration and Supervision*, (February, 1941), 99–106.
John C. Flanagan, "An Analysis of the Results of the First Annual Edition of the National Teacher Examinations," *Journal of Experimental Education*, Vol. IX (March, 1941), 237–250.
David C. Ryan, "The Professional Examination of Teaching Candidates: A Report of the First Annual Administration of the National Teacher Examinations," *School and Society*, (October 5, 1940), 273–284.
Kenneth Winetrout, "The National Teacher Examinations, 1941," *Journal of Higher Education*, (December, 1941), 479–484.

Pyle and Ullman present conflicting points of view concerning the prognostic value of practice teaching marks in the prediction of later teaching success. Pyle found that the estimate of practice teaching is of only slight value in predicting later estimates,[25] whereas Ullman concluded that success in practice teaching is the best single measure of later teaching success.[26]

Method of Investigation

I. Prediction of teaching efficiency.

An analysis was made of the interrelationships among all of the tentative prognostic measures used in the study in order to determine which factors seemed to possess the greatest value in the prediction of teaching efficiency. Factors having value for purposes of prediction should preferably yield high coefficients of correlation with the criterion scores and relatively low coefficients of correlation with each other. It has usually been found that when four or five crucial factors have been isolated, other additional measures make no further appreciable contribution in the prediction equation. A team of four or five factors yielding a high coefficient of multiple correlation satisfactory for purposes of prediction was to be selected and the optimum weighting of each factor for the prediction of teaching success calculated.

It is essential that a criterion of teaching success be established before factors which have prognostic value can be determined. Two separate criteria of teaching success were available for the present study. The first of these was the practice teaching mark of each student in his minor subject matter field; the second, was a rating of a representative group of students in their first actual teaching positions. The composite rating was calculated from ratings made by five supervisors, two of whom were professors from the School of Education at the University of Wisconsin, one was a specialist from the Department of Educational Methods in the subject matter area in which the student taught, one was a member of the State Department of Public Instruction, one was the superintendent or principal of the school in which the teacher

[25] W. H. Pyle, "The Relation Between Intelligence and Teaching Success: A Supplementary Study," *Educational Administration and Supervision*, Vol. XIV (April, 1928), 257–267.

[26] R. P. Tillman, "The Prediction of Teaching Success," *Educational Administration and Supervision*, Vol. XVI (November, 1930), 598–608.

was employed. A pupil rating of the teacher was also used.

II. Evaluation of the experimental tests.

Two new type experimental tests designed to measure professional judgment were prepared and administered to all of the students in Education 75. The coefficients of correlation between the scores on these tests and those on each of the other measures used in the study were calculated in an effort to determine whether it is possible to construct valid and reliable measuring instruments of the general nature of these experimental tests.

III. Comparison of the achievement of class sections under different instructors.

By analysis of the relationships between each of the pairs of measures for the class groups separately information was secured concerning the influence of the philosophy, interests, and teaching procedures of each of the professors upon the achievement of his students. The critical ratios between each group and every other group on each of the measures indicated whether any discovered differences had statistical significance.

A measure of student change in each section of the class was secured in the second semester study through giving an objective test in educational psychology both as a pre-test and as a post-test. A student rating scale for the instructor and one for the course were also used in each section of the class.

Description of Measures Employed

The data analyzed in the study may be classified into three types, namely, scores on standardized tests, scores on informal tests in Education 75, and other marks thought to possess predictive value. The standardized tests included (1) the Henmon–Nelson Test of Mental Ability, (2) the Cooperative Reading Comprehension Test: Form C 2, and (3) the Cooperative General Culture Test: Form Q. The informal tests in Education 75 included (1) the objective Schorling Test dealing with the student's understanding of the principles discussed in the text *Student Teaching*,[27] (2) a subjective Situations Test in which the student was to exercise judgment concerning the selection of specific teaching techniques in a described situation, (3) an objective test dealing with the student's understanding of the principles of learning discussed in *Educational Psychology*,[28] and (4) the Final Examination, a second subjective form judgment test dealing with the selection of teaching techniques. Marks thought to possess predictive value included (1) the practice teaching mark assigned the student for his participation at Wisconsin High School in his minor subject matter area, (2) a practice teaching mark secured in a second practice teaching experience in connection with a methods course in his major subject matter field, (3) an estimated theory grade in Education 75, (4) the final mark in Education 75, (5) the total university grade point average, (6) the university grade point average in the major subject matter area, (7) the university grade point average in the minor subject matter area, and (8) a composite rating of the success of the student in his first actual teaching position.

Analysis of Data

I. Prediction of teaching efficiency.

A. To discover the relationship between practice teaching success as estimated by practice teaching marks and measures prerequisite for teaching efficiency.

A summary of the coefficients of correlation obtained between the criterion of practice teaching success and the prognostic measures investigated is presented in Table I. The general findings revealed by the analysis appear perplexing. Few of the coefficients of correlation between the criterion of practice teaching marks and potential prognostic factors are sufficiently high to indicate that they have value for the prediction of teaching efficiency. In the first semester study relationships significant at the one per cent level were found for the total university grade point average, the major grade point average, the minor grade point average, the Final Examination, the estimated theory mark, the mark in Education 75, and the practice teaching mark in the major subject matter area. Taken singly, none of these coefficients of correlation has a high prognostic value. The Situations Test is significant at the five per cent level. Measures that unexpectedly fall below the five per cent level of significance include scores on the Cooperative General Culture Test and all of its separate parts, the Henmon–Nelson Test of Mental Ability, the Cooperative Reading

[27] Raleigh Schorling, *Student Teaching*. New York: McGraw-Hill Book Co., 1940.

[28] A. I. Gates, A. T. Jersild, T. R. McConnell, and R. C. Challman, *Educational Psychology*. New York: Macmillan Company, 1942.

TABLE I

COEFFICIENTS OF CORRELATION BETWEEN PRACTICE TEACHING MARKS AND TENTATIVE PROGNOSTIC MEASURES

Measures	N	M_1	M_2	σ_1	σ_2	r	S. E.
First Semester Study							
Pr. in Ed. 75 vs Coop. C. Total	100	.14	197.03	.96	60.72	.10	.10
Pr. in Ed. 75 vs Coop. C., C.S.P.	100	.14	38.30	.96	10.46	.07	.10
Pr. in Ed. 75 vs Coop. C., H.S.S.	100	.14	30.78	.96	13.26	.15	.10
Pr. in Ed. 75 vs Coop. C., Lit.	100	.14	41.55	.96	20.53	.13	.10
Pr. in Ed. 75 vs Coop. C., Art	100	.14	42.74	.96	19.00	.07	.10
Pr. in Ed. 75 vs Coop. C., Sci.	100	.14	21.72	.96	7.96	—.05	.10
Pr. in Ed. 75 vs Coop. C., Math.	100	.14	21.96	.96	10.46	.07	.10
Pr. in Ed. 75 vs Total U. Gr. Pt. A.	100	.14	1.82	.96	.39	.49**	.08
Pr. in Ed. 75 vs Major U. Gr. Pt. A.	100	.14	1.95	.96	.46	.45**	.08
Pr. in Ed. 75 vs Minor U. Gr. Pt. A.	88	.12	1.71	.95	.67	.36**	.09
Pr. in Ed. 75 vs Henmon-Nelson	75	.22	69.83	.97	8.14	.07	.12
Pr. in Ed. 75 vs Pr. 2	78	.19	.33	.93	1.03	.36**	.10
Pr. in Ed. 75 vs Reading	100	.14	66.06	.96	9.64	.13	.10
Pr. in Ed. 75 vs Schorling	43	.13	80.51	.99	5.27	.25	.14
Pr. in Ed. 75 vs Situations	100	.14	47.32	.96	3.32	.24*	.09
Pr. in Ed. 75 vs Gates	100	.14	198.08	.96	12.05	.17	.10
Pr. in Ed. 75 vs Final Exam.	100	.14	43.29	.96	2.07	.50**	.08
Pr. in Ed. 75 vs Theory in Ed. 75	100	.14	6.94	.96	1.78	.51**	.07
Pr. in Ed. 75 vs Mark in Ed. 75	100	.14	7.09	.96	1.56	.75**	.04
Second Semester Study							
Pr. in Ed. 75 vs Total U. Gr. Pt. A.	76	.24	1.97	1.03	.30	.35**	.10
Pr. in Ed. 75 vs Major U. Gr. Pt. A.	76	.24	2.06	1.03	.36	.14	.11
Pr. in Ed. 75 vs Minor U. Gr. Pt. A.	67	.29	1.87	1.02	.61	.16	.12
Pr. in Ed. 75 vs Pr. 2	76	.24	.27	1.03	.94	.37**	.10
Pr. in Ed. 75 vs Henmon-Nelson	42	.31	72.62	.98	7.48	.03	.15
Pr. in Ed. 75 vs Gates Pre-T (Gr. 1-2)	48	.37	51.79	.92	10.90	.31*	.13
Pr. in Ed. 75 vs Gates Pre-T. (Gr. 3-4)	28	.02	57.21	1.15	8.89	—.03	.19
Pr. in Ed. 75 vs Schorling Test	76	.24	81.91	1.03	4.31	—.04	.11
Pr. in Ed. 75 vs Gates Post-T. (Gr. 1-2)	48	.37	68.17	.92	11.92	.02	.14
Pr. in Ed. 75 vs Gates Post-T. (Gr. 3-4)	28	.02	80.14	1.15	12.04	.45*	.15
Pr. in Ed. 75 vs Theory	76	.24	6.82	1.03	1.82	.46**	.09
Pr. in Ed. 75 vs Mark in Course	76	.24	7.04	1.03	1.70	.63**	.07

**Significant at the one per cent level;
*Significant at the five per cent level.

Comprehension Test, and both of the objective course examinations. In the second semester study relationships significant at the one per cent level were found between the criterion of practice teaching marks and the total university grade point average, practice in the major subject matter area, the estimated theory mark, and the mark in Education 75. Coefficients of correlation significant at the five per cent level were the Gates Pretest between groups one and two and for the Gates Post-test between groups three and four.

B. To discover the interrelationships among certain measures considered prerequisite for teaching success.

A summary of the interrelationships among the potential predictive measures, with the level of significance, is presented in Table II. Interrelationships among prognostic measures which reach the one per cent level of significance are found between twenty pairs of the measures; relationships which reach the five per cent level of significance are found between five pairs of measures in the first semester study. In the second semester study interrelationships among prognostic measures which reach the one per cent level of significance are found between five pairs of measures. Interrelationships which reach the five per cent level of significance are found between three pairs of measures.

Coefficients of correlation among prognostic measures are noticeably higher than coefficients of correlation between the criterion score and the prognostic measures, a situation which would be expected as there are many overlapping factors among the prognostic measures. Measures which have common factors and therefore show high cor-

relation with each other are not as desirable for purposes of prediction as are measures which have few common factors and therefore a relatively low correlation with each other. In the present study there are few measures which reach the requirements for inclusion in a regression equation.

C. To determine the coefficient of multiple correlation to be obtained from a team of factors selected from data available during the pre-service training program of the prospective teacher and to determine the weighting to be assigned each factor as a beta coefficient for predicting teacher success.

Eight of the factors analyzed were selected as a team of factors likely to be useful for the prediction of teaching success. These factors included scores on the Henmon–Nelson Test of Mental Ability, the Cooperative Reading Comprehension Test, the Cooperative General Culture Test, the Gates Test, the Final Examination, the final mark in Education 75, the total university grade point average, and the practice teaching mark in Education 75. Each was selected either because it had yielded a relatively high coefficient of correlation with the criterion score, or it was a measure which is almost universally accepted as a prerequisite for teaching success. It is to be highly desired that all of the factors included in a team for purposes of prediction yield a significant positive coefficient of correlation with the criterion score. In the present study few such factors were found. The combined prognostic value of the eight factors considered most likely to make a contribution to teaching success was calculated in order to discover whether the coefficient of multiple correlation obtained was sufficiently high to have some predictive value.

The criterion of teaching success for this phase of the study was the composite rating of a representative group of nineteen of the teachers who were given six ratings in their first teaching position as a part of the extensive Teacher Personnel Research Study in the

TABLE II

INTERCORRELATIONS AMONG THE TENTATIVE PROGNOSTIC MEASURES

Measures		N	M_1	M_2	σ_1	σ_2	r	S. E.
First Semester Study								
Coop. C.	vs Total U. Gr. Pt. A.	100	197.03	1.82	60.72	.39	.48**	.08
Coop. C.	vs Major U. Gr. Pt. A.	100	197.03	1.95	60.72	.46	.25*	.09
Coop. C.	vs Minor U. Gr. Pt. A.	88	194.02	1.71	61.64	.67	.41**	.09
Reading	vs Total U. Gr. Pt. A.	100	66.06	1.82	9.64	.39	.48**	.08
Reading	vs Major U. Gr. Pt. A.	100	66.06	1.95	9.64	.46	.23	.10
Reading	vs Minor U. Gr. Pt. A.	88	65.97	1.71	10.03	.67	.61**	.07
Reading	vs Henmon-Nelson	75	65.83	69.83	9.36	8.14	.57**	.08
Schorling	vs Henmon-Nelson	31	81.48	71.06	4.95	7.31	.56**	.12
Situations	vs Henmon-Nelson	75	47.31	69.83	3.52	8.14	.15	.11
Gates	vs Henmon-Nelson	75	198.67	69.83	11.84	8.14	.39**	.10
Final Exam.	vs Henmon-Nelson	75	43.28	69.83	2.13	8.14	.00	.12
Schorling	vs Reading	43	80.51	68.14	5.27	8.20	.34*	.13
Situations	vs Reading	100	47.32	66.06	3.32	9.64	.41**	.08
Gates	vs Reading	100	198.08	66.06	12.05	9.64	.44**	.08
Final Exam.	vs Reading	100	43.29	66.06	2.07	9.64	.08	.10
Schorling	vs Total U. Gr. Pt. A.	43	80.51	1.84	5.27	.41	.71**	.08
Schorling	vs Major U. Gr. Pt. A.	43	80.51	1.88	5.27	.45	.17	.15
Schorling	vs Minor U. Gr. Pt. A.	36	80.25	1.90	5.42	.65	.36*	.09
Situations	vs Total U. Gr. Pt. A.	100	47.32	1.82	3.32	.39	.26*	.09
Situations	vs Major U. Gr. Pt. A.	100	47.32	1.95	3.32	.46	.14	.10
Situations	vs Minor U. Gr. Pt. A.	88	47.18	1.71	3.29	.67	.33**	.09
Gates	vs Total U. Gr. Pt. A.	100	198.08	1.82	12.05	.39	.53**	.07
Gates	vs Major U. Gr. Pt. A.	100	198.08	1.95	12.05	.46	.28**	.09
Gates	vs Minor U. Gr. Pt. A.	88	198.14	1.71	12.64	.67	.43**	.08
Final Exam.	vs Total U. Gr. Pt. A.	100	43.29	1.82	2.07	.99	.28**	.09
Final Exam.	vs Major U. Gr. Pt. A.	100	43.29	1.95	2.07	.46	.32**	.09
Final Exam.	vs Minor U. Gr. Pt. A.	88	43.10	1.71	2.07	.67	.34**	.09
Schorling	vs Situations	43	80.51	49.07	5.27	2.85	.11	.15
Schorling	vs Gates	43	80.51	200.09	5.27	11.99	.44**	.12
Schorling	vs Final Exam.	43	80.51	43.84	5.27	1.88	.18	.15
Situations	vs Gates	100	47.32	198.08	3.32	12.05	.25*	.09
Situations	vs Final Exam.	100	47.32	43.29	3.32	2.07	.52**	.07
Gates	vs. Final Exam.	100	198.08	43.29	12.05	2.07	.14	.10
Theory mark	vs Mark in Ed. 75	100	6.94	7.09	1.78	1.56	.91**	.02

TABLE II—Continued

Measures	N	M_1	M_2	σ_1	σ_2	t	S. E.
Second Semester Study							
Gates Pre. vs Henmon-Nelson (Gr. 1-2)	24	51.12	72.54	11.07	5.77	.26	.19
Gates Pre. vs Henmon-Nelson (Gr. 3-4)	18	57.78	72.72	6.25	9.34	.15	.23
Schorling vs Henmon-Nelson	42	81.43	72.62	4.22	7.48	.25	.15
Gates Post. vs Henmon-Nelson (Gr. 1-2)	24	67.17	72.54	12.93	5.77	.22	.19
Gates Post. vs Henmon-Nelson (Gr. 3-4)	18	77.89	72.72	11.64	9.34	.18	.23
Gates Pre. vs Total U.G.P.A. (Gr. 1-2)	48	51.69	1.94	10.90	.22	.63**	.09
Gates Pre. vs Total U.G.P.A. (Gr. 3-4)	28	57.21	2.01	8.89	.45	.04	.19
Gates Pre. vs Major U.G.P.A. (Gr. 1-2)	48	51.69	2.04	10.90	.36	.18	.14
Gates Pre. vs Major U.G.P.A. (Gr. 3-4)	28	57.21	2.08	8.89	.41	—.01	.19
Gates Pre. vs Minor U.G.P.A. (Gr. 1-2)	44	51.68	1.84	10.83	.59	.29	.14
Gates Pre. vs Minor U.G.P.A. (Gr. 3-4)	23	55.04	1.93	8.04	.65	.12	.21
Schorling vs Total U.G.P.A.	76	81.91	1.97	4.31	.30	.29*	.11
Schorling vs Major U.G.P.A.	76	81.91	2.06	4.31	.36	.00	.11
Schorling vs Minor U.G.P.A.	67	81.65	1.87	4.38	.61	.34**	.11
Gates Post. vs Total U.G.P.A. (Gr. 1-2)	48	68.17	1.94	11.92	.22	.58**	.10
Gates Post. vs Total U.G.P.A. (Gr. 3-4)	28	80.14	2.01	12.04	.45	.56**	.14
Gates Post. vs Major U.G.P.A. (Gr. 1-2)	48	68.17	2.04	11.92	.36	.22	.14
Gates Post. vs Major U.G.P.A. (Gr. 3-4)	28	80.14	2.08	12.04	.41	.47*	.15
Gates Post. vs Minor U.G.P.A. (Gr. 1-2)	44	67.64	1.84	12.20	.59	.25	.14
Gates Post. vs Minor U.G.P.A. (Gr. 3-4)	23	80.57	1.93	12.87	.65	.48*	.16
Theory Mark vs Mark in Ed. 75	76	6.82	7.04	1.82	1.70	.92**	.02

**Significant at the one per cent level.
*Significant at the five per cent level.

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The representativeness of the nineteen students from the entire group of one hundred was found on each of the eight tentative predictive factors. The following percentages of representativeness were found:

	%
Henmon-Nelson Test of Mental Ability	98
Cooperative Reading Comprehension Test	97
Cooperative General Culture Test	99
Gates Test	97
Final Examination	85
Practice teaching in Education 75	97
Final mark in Education 75	97
Total university grade point average	88

A correlation matrix placing factors in approximately the order in which they are available to the School of Education was set up using the coefficients of correlation between the composite rating of teaching success and each of the other measures as the criterion column. Beta coefficients were then calculated and a multiple regression equation solved.

The beta coefficients were as follows:

$X_1 = -.033$; $X_2 = -.208$; $X_3 = -.387$; $X_4 = .825$; $X_5 = -.380$; $X_6 = .390$; $X_7 = .118$; $X_8 = -.093$.

The beta coefficients were multiplied by the proper correlations in the criterion row of the matrix to determine the coefficient of multiple correlation to be expected between scores on the criterion and scores predicted for individuals on the basis of the regression equation. The multiple r becomes the square root of:

$$(-.033 \times -.17) + (-.208 \times -.12) + (-.387 \times -.17) + (.825 \times .44) + (-.380 \times .15) + (.390 \times .37) + (.118 \times .18) + (-.093 \times .17) = \sqrt{.42} \text{ or } .65 \pm .07.$$

TABLE III

CORRELATION MATRIX FOR THE PREDICTION OF TEACHING SUCCESS

	X_0	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
X_0	1.00	—.17	—.12	—.17	.44	.15	.37	.18	.17
X_1	—.17	1.00	.57	.53	.30	.26	.00	.39	.07
X_2	—.12	.57	1.00	.68	.48	.25	.08	.44	.13
X_3	—.17	.53	.68	1.00	.48	.14	.02	.35	.10
X_4	.44	.30	.48	.48	1.00	.56	.28	.53	.49
X_5	.15	.26	.25	.14	.56	1.00	.51	.46	.75
X_6	.37	.00	.08	.02	.28	.51	1.00	.14	.50
X_7	.18	.39	.44	.35	.53	.46	.14	1.00	.17
X_8	.17	.07	.13	.10	.49	.75	.50	.17	1.00

X_0 Criterion, teaching success.
X_1 Henmon-Nelson Test of Mental Ability.
X_2 Cooperative Reading Comprehension Test.
X_3 Cooperative General Culture Test.
X_4 Total university grade point average.
X_5 Mark in Education 75.
X_6 Final Examination.
X_7 Gates Test.
X_8 Practice teaching in Education 75.

The strength of relationship between the criterion and the combined group of factors when each factor makes its maximal contribution is the coefficient of multiple correlation of .65 ± .07.

When the coefficient of multiple correlation is interpreted in terms of the coefficient of multiple determination. The coefficient of multiple determination, R^2, tells us the proportion of the variance in the criterion score that is dependent upon the team of independent variables. In this study R^2 is .42 which indicates that forty two per cent of the variance in teaching scores is accounted for by the eight independent variables when we have eliminated overlapping factors which they have in common.

Although the multiple R between the criterion and the team of selected factors thought to have prognostic value is significant at the one per cent level, it is not sufficiently high for purposes of individual prediction except at the extremes of the distribution.

The complete regression equation for predicting individual teaching success scores becomes:

$$x_0 = (-.033x_1) + (-.208x_2) + (-.387x_3) + (.825x_4) + (-.380x_5) + (.390x_6) + (.118x_7) + (-.093x_8).$$

II. Evaluation of the experimental tests.

One phase of the present study was a preliminary evaluation of two new type tests for measuring the judgment factor in a practical teaching situation. As the new tests were designed to measure "teaching intelligence," it was assumed that the coefficients of correlation between them and measures of general mental ability, professional knowledge and general knowledge should show reliable, positive relationship.

The coefficients of correlation between the experimental tests and each of the other measures analyzed in the study of Education 75 with the level of significance, are summarized in Table IV.

The most crucial preliminary test of the effectiveness of the experimental examinations is their relationship with practice teaching success. No significant relationship is found between either of the two experimental tests and practice teaching marks. A relationship significant at the one per cent level is found between the Principles Test and five other measures, namely, the Henmon–Nelson Test of Mental Ability, the Cooperative Reading Comprehension Test, the total university grade point average, the minor university grade point average, and the Gates Test. A relationship significant at the five per cent level is found with the Situations Test. No significant relationship is found between the first semester form of the Judgment Test and any of the measures analyzed in the study. The unreliability of the various parts of the Judgment Test is probably a contributing factor in the findings. The second semester form of the Judgment Test presents a marked improvement over the first semester form. Relationships significant at the one per cent

TABLE IV

COEFFICIENTS OF CORRELATION BETWEEN THE EXPERIMENTAL TESTS AND OTHER MEASURES ANALYZED IN THE STUDY

Measures	N	M_1	M_2	σ_1	σ_2	r	S.E.
First Semester Form							
Principles vs Pr. in Ed. 75	100	114.80	.14	17.05	.96	.17	.10
Principles vs Pr. 2	78	115.32	.33	16.18	1.03	—.04	.11
Principles vs Henmon-Nelson	75	114.75	69.83	16.09	8.14	.41**	.10
Principles vs Reading	100	114.80	66.06	17.05	9.64	.52**	.07
Principles vs Total U.G.P.A.	100	114.80	1.82	17.05	.39	.27**	.09
Principles vs Major U.G.P.A.	100	114.80	1.95	17.05	.46	.08	.10
Principles vs Minor U.G.P.A.	88	114.26	1.71	17.63	.67	.32**	.10
Principles vs Schorling	43	114.98	80.51	12.08	5.27	.22	.15
Principles vs Situations	100	114.80	47.32	17.05	3.32	.23*	.10
Principles vs Gates	100	114.80	198.08	17.05	12.05	.48**	.08
Principles vs Final Exam.	100	114.80	43.29	17.05	2.07	.06	.10
Judgment vs Pr. in Ed. 75	100	183.21	.14	10.35	.96	—.01	.10
Judgment vs Pr. 2	78	183.41	.33	10.27	1.03	—.13	.11
Judgment vs Henmon-Nelson	75	183.49	69.83	10.07	8.14	—.01	.12
Judgment vs Reading	100	183.21	66.06	10.35	9.64	.19	.10
Judgment vs Total U.G.P.A.	100	183.21	1.82	10.35	.39	.01	.10
Judgment vs Major U.G.P.A.	100	183.21	1.95	10.35	.46	—.01	.10
Judgment vs Minor U.G.P.A.	88	183.34	1.71	10.25	.67	.09	.11
Judgment vs Schorling	43	182.51	80.51	9.91	5.27	.11	.15
Judgment vs Situations	100	183.21	47.32	10.35	3.32	.10	.10
Judgment vs Gates	100	183.21	198.08	10.35	12.05	.10	.10
Judgment vs Final Exam.	100	183.21	43.29	10.35	2.07	—.09	.10
Judgment vs Principles	100	183.21	114.80	10.35	17.05	.15	.10
Second Semester Form							
Judgment vs Pr. in Ed. 75	76	709.51	.24	47.96	1.03	.03	.11
Judgment vs Pr. 2	76	709.51	.27	47.96	.94	.07	.11
Judgment vs Henmon-Nelson	42	713.74	72.62	50.63	7.48	.20	.15
Judgment vs Total U.G.P.A.	76	709.51	1.97	47.96	.30	.46**	.09
Judgment vs Major U.G.P.A.	76	709.51	2.06	47.96	.36	.26*	.11
Judgment vs Minor U.G.P.A.	67	706.43	1.87	47.74	.61	.33**	.11
Judgment vs Schorling	76	709.51	81.91	47.96	4.31	.39**	.10
Judgment vs Theory	76	709.51	6.82	47.96	1.82	.26*	.11
Judgment vs Final Mark	76	709.51	7.04	47.96	1.70	.24*	.11

**Significant at the one per cent level;
*Significant at the five per cent level.

level occur with three of the measures which are analyzed. Relationships significant at the five per cent level appear with three other measures. The fact that the coefficients of correlation between the revised form of the Judgment Test and measures of both academic achievement and of professional knowledge have reached the level of significance, and that a higher coefficient of correlation with the Henmon–Nelson Test is found in the revised form of the Judgment Test tends to indicate that a Judgment Test which will contribute toward narrowing the range of prediction relative to teaching success can be constructed.

III. Comparison of the achievement of class sections under different instructors.

A. To discover differences in performance among the class sections which might be attributed to differences in the philosophy, interests, and teaching procedures of the lecture-discussion professors.

During the first semester of the 1942–43 academic year the four sections of Education 75 were taught by two instructors, one of whom taught Sections I and II; the other taught Sections III and IV. The instructor for Sections I and II placed emphasis on the practical and made constant effort to relate theory to practice in his work. The instructor in Sections III and IV held a progressive educational philosophy. No attempt will be made to present a detailed analysis of the teaching philosophy, interests, and classroom procedures of the two professors. A few comparisons and contrasts in achievement of the class groups will be indicated.

In the first semester study the class groups were not homogeneous in ability; therefore achievement among them can not be directly

compared. An attempt was made to rank the sections according to their general ability through comparing the means and sigmas on three measures of homogeneity, namely, the Henmon–Nelson Test of Mental Ability, the Cooperative Reading Comprehension Test: Form C, and the Cooperative General Culture Test: Form Q. The critical ratio between every pair of groups on each of these measures was also found. A final ranking based on the three measures would place Section IV in the first place, Section I second, Section II third, and Section III fourth. Section III differed from each of the other sections by amounts that are statistically significant on practically all of the measures; therefore that section was at a decided disadvantage in so far as these measures are prognostic of success in theory and practice in Education 75.

Table V presents a summary of the critical ratios between means of each of the sections of Education 75 on course examinations and on the experimental tests for both semester study groups with the level of significance at which each critical ratio falls.

In the first semester study the rank order of achievement on course examinations is probably influenced by the teaching philosophy of the instructors. The achievement of Section I and that of Section II on the uniform course examinations appears to exceed that expected from the relative rankings of the four sections on the measures of general background and ability. In the course examinations the influence of teaching seems most strongly noticeable in Section II. In measures of general ability Section II ranked third. On two of the course examinations Section II

TABLE V

CRITICAL RATIOS BETWEEN THE MEANS OF CLASS SECTION ON COURSE EXAMINATIONS AND ON THE EXPERIMENTAL TESTS

Measures	N_1	N_2	M_1	M_2	σ_1	σ_2	$\sigma_{diff.}$	Diff. of M.	C. R.
First Semester Study									
Schorling									
Sections 1 and 2	23	20	80.96	80.00	5.61	4.76	1.58	.96	.61
Situations									
Sections 1 and 2	23	20	49.65	48.40	3.40	1.85	.82	1.25	1.52
1 and 3	23	28	49.65	45.07	3.40	3.19	.93	4.58	4.92**
1 and 4	23	29	49.65	46.90	3.40	2.55	.85	2.75	3.24**
2 and 3	20	28	48.40	45.07	1.85	3.19	.73	3.33	4.56**
2 and 4	20	29	48.40	46.90	1.85	2.55	.63	1.50	2.38*
3 and 4	28	29	45.07	46.90	3.19	2.55	.76	1.83	2.41*
Gates									
Sections 1 and 2	23	20	196.57	204.15	12.27	10.22	3.43	7.58	2.21*
1 and 3	23	28	196.57	192.14	12.27	9.66	3.30	4.43	1.34
1 and 4	23	29	196.57	200.83	12.27	12.25	3.42	4.26	1.25
2 and 3	20	28	204.15	192.14	10.22	9.66	2.93	12.01	4.10**
2 and 4	20	29	204.15	200.83	10.22	12.25	3.22	3.32	1.03
3 and 4	28	29	192.14	200.83	9.66	12.25	2.92	8.69	2.98**
Final Exam.									
Sections 1 and 2	23	20	43.22	44.55	2.31	.74	.51	1.33	2.61*
1 and 3	23	28	43.22	43.57	2.31	1.75	.58	.35	.60
1 and 4	23	29	43.22	42.21	2.31	2.20	.63	1.01	1.60
2 and 3	20	28	44.55	43.57	.74	1.75	.37	.98	2.65*
2 and 4	20	29	44.55	42.21	.74	2.20	.45	2.34	5.20**
3 and 4	28	29	43.57	42.21	1.75	2.20	.53	1.36	2.57*
Principles									
Sections 1 and 2	23	20	108.00	123.00	12.33	4.42	2.75	15.00	5.45**
1 and 3	23	28	108.00	102.25	12.33	20.94	4.72	5.75	1.22
1 and 4	23	29	108.00	126.66	12.33	8.32	3.00	18.66	6.22**
2 and 3	20	28	123.00	102.25	4.42	20.94	4.08	20.75	5.09**
2 and 4	20	29	123.00	126.66	4.42	8.32	1.84	3.66	1.99
3 and 4	28	29	102.25	126.66	20.94	8.32	4.25	24.41	5.74**
Judgment									
Sections 1 and 2	23	20	181.52	183.65	9.58	10.15	3.02	2.13	.71
1 and 3	23	28	181.52	182.64	9.58	9.48	2.68	1.12	.42
1 and 4	23	29	181.52	184.79	9.58	11.57	2.94	3.22	1.10
2 and 3	20	28	183.65	182.64	10.15	9.48	2.89	1.01	.35
2 and 4	20	29	183.65	184.79	10.15	11.57	3.13	1.14	.36
3 and 4	28	29	182.64	184.79	9.48	11.57	2.80	2.15	.77

TABLE V—Continued

Measures	N_1	N_2	M_1	M_2	σ_1	σ_2	$\sigma_{diff.}$	Diff. of M.	C. R.
Second Semester Study									
Schorling									
Sections 1 and 2	27	21	80.74	81.43	4.30	3.28	1.10	.69	.63
1 and 3	27	12	80.74	82.83	4.30	5.79	1.87	2.09	1.12
1 and 4	27	16	80.74	83.81	4.30	3.67	1.24	3.07	2.48*
2 and 3	21	12	81.43	82.83	3.28	5.79	1.82	1.40	.77
2 and 4	21	16	81.43	83.81	3.28	3.67	1.16	2.38	2.05*
3 and 4	12	16	82.83	83.81	5.79	3.67	1.91	.98	.51
Gates Pre-Test									
Sections 1 and 2	27	21	48.41	55.90	11.41	8.58	2.88	7.49	2.60*
3 and 4	12	16	54.17	59.50	9.25	7.80	3.31	5.33	1.61
Gates Post-Test									
Sections 1 and 2	27	21	64.56	72.81	11.45	10.86	3.24	8.25	2.55*
3 and 4	12	16	82.50	78.38	13.19	10.73	4.66	4.12	.88
Judgment									
Sections 1 and 2	27	21	698.52	694.38	52.68	47.29	14.47	4.14	.29
1 and 3	27	12	695.52	727.08	52.68	31.29	13.58	28.56	2.10*
1 and 4	27	16	698.52	734.75	52.68	34.56	13.32	36.33	2.72**
2 and 3	21	12	694.38	727.08	47.29	31.29	13.71	32.70	2.39*
2 and 4	21	16	694.38	734.75	47.29	34.56	13.46	40.37	3.00**
3 and 4	12	16	727.08	734.75	31.29	34.56	12.50	7.67	.61

**Significant at the one per cent level;
*Significant at the five per cent level.

ranked first with means that differed significantly from those of presumably more capable sections of the class. The ability of Section III, in general, seems to be the most important factor influencing the achievement of that group and is a factor so potent that teaching could not compensate for it. The achievement of Sections III and IV is relatively better on the experimental tests than on the uniform course examinations.

Although there appear to be differences in achievement between the class sections due to differences in the teaching philosophy, interests, and classroom procedure of the instructors in Education 75, the differences in achievement between the two sections taught by the same instructor in both cases are as great as those between his sections and those taught by the other instructor.

In two instances differences on course examinations significant at the five per cent level appear between the mean of Section I and that of Section II. In Sections III and IV one difference significant at the one per cent level and two differences significant at the five per cent level appear. Other factors appear to be equally important, or possibly more so, than differences which may be attributed to the instructors.

Three instructors in the School of Education taught the four sections of Education 75 during the second semester. The instructor who taught Section I and Section II during the first semester taught Section I of the second semester class. One instructor taught Sections II and III. A third instructor taught Section IV.

Measures of homogeneity for the second semester group include scores on the Henmon–Nelson Test of Mental Ability and the three grade point averages. The second semester sections of Education 75 were much more closely comparable in ability than were the first semester sections. Differences between the means of class sections in mental ability are very small, none approaching statistical significance. Section II is at a slight disadvantage in academic achievement as measured by grade point averages. The ranking of the sections on the basis of the means and sigmas would place Section III first, Section I second, Section IV third, and Section II fourth.

Examination of Table V shows that on the Gates Post-Test Sections I and II maintain the same relative position that they did in the Gates Pre-Test, a measure of comparability of the groups in professional knowledge at the beginning of the course. No statistically significant differences appeared between the means of Sections III and IV in either the Gates Pre-Test or the Gates Post-Test. In all four sections of the class the size of sigma has increased, which indicates that provision was made for individual differences. The critical ratios among the groups on the Schorling Test are relatively small. Two of the critical ratios

between means on the experimental Judgment Test reach the one per cent level of significance and two others reach the five per cent level. Section IV shows exceptionally fine achievement on the Judgment Test, the difference between its mean and that of both Section I and Section II being highly significant.

B. To discover whether change scores on the Gates Test in the four sections of Education 75 during the second semester study are significant.

The Gates Test was given as a pre-test at the beginning of the second semester and was repeated as a post-test at the close of the semester. Two forms of this test were used. Section I and Section II wrote on one form; Section III and Section IV wrote on the other form. A mean change score for each section was calculated and the critical ratio determined. Table VI summarizes achievement on both the final test and the initial test with the change scores and the critical ratios which were calculated to determine whether statistically significant differences had taken place.[29] A highly significant change was made in each section of the class. Uniform gains appear to have been made by sections writing on comparable forms of the test.

TABLE VI

FINAL, INITIAL, AND CHANGE SCORES WITH THE CRITICAL RATIOS FOR EACH SECTION OF THE CLASS ON THE GATES TEST

Sections	Final		Initial		Change		C. R.
	M_n	S. D.	M_n	S. D.	M_n	S. D.	
1	64.56	11.45	48.41	11.41	16.15	12.77	6.57
2	72.81	10.86	55.90	8.58	16.90	11.64	6.66
3	82.50	13.19	54.17	9.25	28.33	16.95	5.79
4	78.38	10.73	59.50	7.80	18.88	12.85	5.86

C. To investigate student rating of the instructors in Education 75 and student evaluation of the course.

A few days before the end of the semester each student was given two copies of an adaptation of the Purdue Rating Scale for Instructors and a short rating scale for an evaluation of both theory and practice in the course. On these five point scales "one" is high and "five" is low. Table VII presents a summary of the results from the rating scale for instructors for both the first and the second semester study. Table VIII presents a summary of student evaluation of theory and practice in Education 75.

Students tended to rate the instructors high. Lecture-discussion instructors were rated higher than critic teachers in the following qualities in the first semester study: interest in subject, scholarship, tolerance toward opinions of students, sympathetic attitude toward students, fairness, emotional balance, and openmindedness. Critic teachers were rated higher than lecture-discussion instructors in the following qualities: ability to stimulate intellectual curiosity, skill in presenting subject, leadership, and originality. The second semester ratings were closely similar to those of the first semester although a different group of individuals comprised both the lecture-discussion instructors and the critic teachers.

The students as a whole rated the theoretical value of the lecture-discussion sections slightly higher than the practical value. There was general agreement that the interest value is average, that the course is below average in difficulty, that the subject matter is up-to-date, and that the organization of the course is above average. Theory was placed in the middle fifth in comparison with other courses taken at the university. Practice was rated slightly higher than theory in the evaluation of the course, but the instructors in theory were rated higher than the critic teachers.

SUMMARY OF FINDINGS

I. Prediction of teaching efficiency.

A. To discover the relationship between practice teaching success as estimated by practice teaching marks and measures considered prerequisite for teaching success.

The following findings concerning the relationship between practice teaching success and the prognostic measures seem to be warranted to the extent that the assumptions underlying the measures are valid:

[29] A. S. Barr and C. N. Mills, "A Short Method of Calculating the Standard Error of the Difference of the Means of Paired Items," *Journal of Experimental Education*, Vol. V (March, 1937), 313–4.

TABLE VII

RESULTS FROM THE RATING SCALE FOR INSTRUCTORS

(Mean Scores)

Qualities	First Semester		Second Semester	
	Theory*	Practice	Theory*	Practice
1. Interest in subject	1.14	1.37	1.28	1.24
2. Scholarship	1.17	1.52	1.32	1.28
3. Stimulation of intellectual curiosity	2.46	1.86	2.56	1.79
4. Skill in presenting subject	2.33	1.60	2.17	1.79
5. Tolerance toward opinions of students	1.12	2.08	1.30	1.90
6. Sympathetic attitude toward students	1.08	2.05	1.08	1.89
7. Fairness	1.14	2.07	1.26	2.05
8. Sense of humor	1.70	1.54	1.27	1.47
9. Emotional balance	1.18	1.45	1.06	1.83
10. Disposition	1.86	1.92	1.24	1.74
11. Leadership	2.03	1.70	2.06	1.81
12. Originality	2.22	1.66	2.02	1.54
13. Helpfulness to student	1.45	1.56	1.56	1.56
14. Daily preparation	1.94	1.74	2.00	1.56
15. Openmindedness	1.23	1.65	1.41	1.39
16. Freedom from personal peculiarities	1.75	1.82	1.84	1.72
17. Personal appearance	1.05	1.40	1.04	1.10
18. Comparison with other instructors	1.86	1.87	1.96	1.60

*Theory—lecture-discussion instructor; Practice—critic teacher.

TABLE VIII

STUDENT EVALUATION OF EDUCATION 75

(Mean Scores)

Qualities	First Semester		Second Semester	
	Theory*	Practice	Theory*	Practice
1. Practical value	2.3	1.5	2.6	1.8
2. Theoretical value	2.2	1.5	2.3	1.9
3. Interest value	3.0	1.8	3.2	2.3
4. Difficult value	3.1	2.9	3.1	3.0
5. Up-to-dateness of subject matter	1.3	1.4	1.3	1.2
6. Organization	2.2	1.8	2.6	2.2
7. Place of course	2.9	1.8	3.1	2.4

(Based on five point scale—1 being high)

1. No significant relationship is found between practice teaching marks and general knowledge as measured by scores on the Cooperative General Culture Test: Form Q or between any of the separate subjects included in the test.

2. A significant relationship is found between success in practice teaching and the total university grade point average, the major grade point average and the minor grade point average in the first semester study. A significant relationship is found between success in practice teaching and the total university grade point average in the second semester study.

3. No significant relationship is found between success in practice teaching and mental ability as measured by the Henmon–Nelson Test of Mental Ability.

4. Significant relationships are found among practice teaching marks, estimated theory marks, and the final marks in Education 75.

5. Subjective course examinations tend to show a higher relationship with practice teaching marks than do the objective examinations.

6. A significant relationship is found between practice teaching marks in the minor subject matter area and practice teaching marks in the major subject matter area.

7. No significant relationship is found between practice teaching marks and reading ability as measured by the Cooperative Reading Comprehension Test.

B. To discover the interrelationships among certain measures considered prerequisite for teaching success.

The following specific findings concerning the interrelationships among prognostic measures seem to be warranted to the extent that the assumptions underlying the measures are valid:

1. A significant relationship is found between scores on the Cooperative General Culture Test and the total university grade point average, the major grade point average, and the minor grade point average.

2. A significant relationship is found between reading ability and the total university grade point average, the major grade point average, and the minor grade point average.

3. A significant relationship is found between scores on the Henmon–Nelson Test of Mental Ability and scores on the Cooperative Reading Comprehension Test.

4. Significant relationship is found between scores on the Henmon–Nelson Test of Mental Ability and the objective course examinations. No significant relationship is found between scores on the Henmon–Nelson Test of Mental Ability and scores on the subjective course examinations.

5. In general, there is high relationship between reading ability and scores on the course examinations in Education 75. A significant relationship is found between scores on the Cooperative Reading Comprehension Test and the Situations Test, the Gates Test and the Final Examination.

6. In general, there is a significant relationship between scores on the course examinations and the three university grade point averages used in the study.

7. Significant relationships are found between the two subjective course examinations and between the two objective examinations. No highly significant relationship is found between either subjective examination and one of the objective course examinations.

8. A significant relationship is found between the theory mark and the mark for the course.

C. To determine the multiple correlation to be obtained from a team of factors selected from data available during the pre-service training program of the prospective teacher.

The following conclusion concerning the coefficient of multiple correlation to be obtained from a team of selected factors available during the pre-service training program of the prospective teacher appears to be warranted from an analysis of the data:

1. The coefficient of multiple correlation obtained between the criterion and the team of selected factors thought to have prognostic value is not sufficiently high for purposes of individual prediction although it is significant at the one per cent level.

II. Evaluation of the experimental tests.

A. To make a preliminary evaluation of the general worth of a new type experimental Principles Test.

1. A significant relationship is found between the first semester form of the experimental Principles Test and each of the following measures: Henmon–Nelson Test of Mental Ability, the Cooperative Reading Comprehension Test, the total university grade point average, the minor university grade point average, the Gates Test and the Situations Test. No significant relationship is found with any of the other measures.

B. To make a preliminary evaluation of the general worth of a new type Professional Judgment Test.

1. No significant relationship is found between the first semester form of the experimental Professional Judgment Test and any of the other measures used in this study for the first semester group. The reliability of each part of the test is very low.

2. A significant relationship is found between the second semester form of the experimental Professional Judgment Test and each of the following measures: total university grade point average, minor university grade point average, the Schorling Test, the estimated theory mark, and the final mark in the course. No significant relationship is found with any of the other measures analyzed in the study. The reliability of each part of the test has been improved over that of the first semester form, and the reliability of some parts of the test approaches acceptability.

C. To determine the possibility of constructing a reliable and valid measuring instrument of the general nature of the two experimental tests used in the present study.

1. It appears to be possible to construct a reliable and valid test of professional judgment which will contribute toward narrowing

the range of prediction relative to teaching success during the pre-service training program.

III. Comparison of the achievement of class sections under different instructors.

A. To study differences in performance among the class sections which might be attributed to differences in the philosophy, interests, and teaching procedures of the lecture-discussion professors.

1. Educational philosophy, interests, and teaching procedures of the instructors tend to influence the achievement of the class on the different types of course examinations and on the experimental tests in the first semester study of Education 75.

2. In the first semester study the differences in performance on tests between the two sections taught by the same instructor are as great or greater than the differences between these classes and those taught by the other instructor. Other factors than the instructor seem equally important in determining the achievement of the class groups.

3. In the second semester study no differences in test performance among the sections of the class appear attributable to differences in teaching philosophy, interests, and classroom techniques of the lecture-discussion professors.

4. Each of the instructors in Education 75 appears to be successful in attaining his objective in the course, the training of better teachers.

B. To discover whether change scores on the Gates Test in the four sections of Education 75 during the second semester study are significant.

1. There is a highly significant change score on the Gates Test in each of the four sections of the class.

C. To investigate student rating of the instructors in Education 75 and student evaluation of the course.

1. Students tend to rate the instructors high on the adaptation of the Purdue Rating Scale for Instructors.

2. Lecture-discussion instructors were rated higher than critic teachers in the following qualities: interest in subject, scholarship, tolerance toward opinions of students, sympathetic attitude toward students, fairness, emotional balance, and openmindedness.

3. Critic teachers were, in general, rated higher than lecture-discussion instructors in ability to stimulate intellectual curiosity, skill in presenting subject, leadership, and originality. The single exception to this general trend is found in the second semester study in which the lecture-discussion professor in Sections II and III received higher ratings in each of these qualities than either the other lecture-discussion instructors or the critic teachers.

4. Education 75 is placed in the middle fifth in comparison with other courses taken at the university. The students rate the theoretical value of the course slightly higher than the practical value. There is general agreement that the interest value is average, that the course is below average in difficulty, that the organization of the course is above average, and that the subject matter is highly up-to-date.

Evaluation of the Findings

The uniformly low coefficients of correlation found in the present study are a characteristic common to many of the studies dealing with the relationship between measures considered prerequisite to teaching success and a criterion score. Several factors contribute to such findings. One of these factors is the unreliability of the tests themselves with a resulting attenuation of the coefficients of correlation. The reliability of the Schorling Test as determined by the chance-half correlation method corrected by the Spearman–Brown Formula is .46. The coefficient of reliability for the Gates Test is .86 and that for the Situations Test .28. The low reliability and probably low validity of the measures employed are factors which result in a substantial lowering of the coefficients of correlation. Guilford discusses the problem as follows:

> When one is investigating a purely theoretical problem, even very small correlations, if statistically significant (undoubtedly not zero), are often very indicative of a psychological law. Whenever a relationship between two variables is established beyond reasonable doubt, the fact that the correlation coefficient is small may merely mean that the measurement situation is contaminated by many things uncontrolled or not held constant.[20]

[20] J. P. Guilford, *Fundamental Statistics in Psychology and Education*. New York: McGraw-Hill Book Company, Inc., 1942. P. 220.

The apparent lack of significant relationship between teaching success and such factors as mental ability and knowledge of subject matter may be due in part to the small range in these factors among the individuals in the study group. The students are a highly selected group ranking largely in the upper quartile of scores of high school seniors on the Henmon–Nelson Test of Mental Ability. A narrow range results in a low coefficient of correlation. It certainly is to be doubted that intelligence is not related to teaching success. There must assuredly be some mental level below which the teacher must not fall if she is to succeed in her profession although the specific level may vary with the type of teaching position which the teacher holds. It is quite possible that general intelligence tests do not measure adequately some of the mental factors essential for teaching success such, for example, as the professional judgment of the teacher in a complex interactional teaching situation. Although the range in subject matter knowledge as measured by the Cooperative General Culture Test is relatively wide, students securing lower scores as a rule taught in the subject matter area in which they tended to excel.

A further factor contributing to the low coefficients of correlation obtained may be inherent in the small contribution that each individual factor makes in the complex configuration of functional abilities which together constitute a successful pattern for teaching. Barr states:

> While it is not exactly a shortcoming, the low coefficients of correlation secured in most of the studies of the measurement of teaching ability are due not wholly to the lack of validity in our instruments for measuring teaching ability but in part to errors of measurement; in part to the range of talent; and in part to the minuteness of the contribution made by the different aspects of teaching measured when compared with the whole of teaching ability.

The nature of the criterion scores may be a further factor influencing the findings in the study. Both criterion scores are entirely subjective and liable to the errors inherent in subjective judgments. Factors which critic teachers consider important in rating their student teachers vary widely, as does also the relative weighting of each factor among the individual critics. That the criteria employed by the critics are quite diverse in the present study might be concluded from a comparison of the practice teaching mark of the student in his major subject with that in his minor. The coefficient of correlation between these two marks in the first semester was only .36 ± .10 and in the second semester .37 ± .10. Although in each case the obtained coefficient of correlation is significant at the one per cent level, it does not approach a relationship which is satisfactory for purposes of either individual or group prediction. The second criterion of teaching success, a composite field rating of the teacher in her first actual teaching position, is the more satisfactory criterion of the two although it, too, is based upon subjective judgment. Supervisory rating is, however, the criterion of teaching success commonly employed in the best school systems of the country in determining teacher promotions as no adequate objective criterion of teaching success has as yet been developed. A more satisfactory criterion score would be a pupil change score. The best teacher is the one who brings about the greatest number of desirable changes in her pupils. Pupil change must be broadly conceived to include changes in knowledges, abilities, skills, and attitudes which together constitute the underlying objectives of a democratic educational program.

Although no measures were discovered in the present study which are satisfactory for predicting teacher success during the preservice training program of the prospective teacher, there are important implications for further research which may eventually result in the discovery of valid and reliable prognostic measures. The problem of measuring and predicting teaching ability is extremely complex. Teaching is a complex social activity in which all of the interests, abilities, and traits of the teacher contribute to the final results she obtains. The teacher brings her whole self to the task of teaching. Her personal qualities, professional equipment, academic preparation, mental ability, social adjustment, emotional stability, and her vitality and drive must be considered as they function in an interactional situation involving pupils with their interests and capacities

[21] A. S. Barr, "Measurement of Teaching Ability," *Journal of Educational Research*, Vol. XXVIII (April, 1935). P. 566.

as well as limitations respecting materials of instruction and the general physio-social environment for learning.

Evaluation of teaching efficiency is inevitable. It is most desirable that evaluation be conducted in accordance with valid and reliable criteria. The fact that little is known concerning the factors crucial for teaching success is a challenge to educators and personnel of teacher training institutions to devise better measuring instruments and techniques which will appraise more adequately the success of both the individual teacher and the pre-service training program.

THE RELATION OF SOCIAL FACTORS TO TEACHING ABILITY*

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SECTION I

INTRODUCTORY STATEMENT

For a half century or more educators have been asking the question, "What makes a good teacher?" Numerous efforts have been made to answer it, but we are still uncertain about the answer. Almost every school child as well as every educator thinks that he is able to distinguish a good teacher from a poor one. Formerly it was assumed that such judgment by the expert administrator was a valid criterion of teaching ability. More recently it has become apparent that experts do not agree in their decisions. This has been followed by attempts to discover more objective criteria.

Investigators have tested the relations between a wide range of ratings of teacher traits and a variety of criteria of teaching ability, but there seems to have been little recognition of the social character of the teaching situation. This no doubt stems from the failure of educators to recognize, that "the learning process is a social process and the occasion for almost all learning is social."[1] The realization of this basic fact leads immediately to the hypothesis that perhaps some factors in the social situations in which learning occurs influence the amount and the quality of the learning. If it is assumed, as will be done in this study, that the amount of learning which results from particular teaching-learning situations is a valid criterion of teaching ability, then, we must immediately recognize the possibility that the character of the social relations in the learning situations may influence the quality of the teaching. It is with this hypothesis that the present study is concerned.

The knowledge which may be obtained concerning the relation of the social milieu has far-reaching implications with regard to the methods of teaching. This possibility is clearly stated by Tuttle: "Since every learning situation is essentially social, method cannot be finally determined by the psychologist alone. Sociology is called upon to make a very definite and significant contribution."[2] This may explain in part the failure of educators and psychologists to find the answer to the question, "What makes a good teacher?" We will note later that they have practically ignored social factors in their efforts to discover the correlates of good teaching. They have concentrated rather on the individual traits and the training of the teachers.

The social relations in the teaching milieu might be classified under two general categories: first, the interactions within the specific learning situation, which in this study, is the school; and the second, the interactions between the members of the school group and the larger society which supports and institutes the school. The first of these grows out of the fact that "the school is a unity of interacting personalities."[3] Within this unity there is a separate and rather distinct type of social pattern composed of the interaction between teachers and pupils, pupils and pupils, and teachers and teachers. The character of these interrelationships may affect the amount of learning that derives from them and thus modify the effectiveness of the teaching. A major part of the study reported here is an attempt to present some objective evidence on these interreactions.

Another portion of the study is concerned with factors which those of the teachers to the community or larger social groups. It has long been believed by patrons and edu-

* Some data from this study were used in a paper "The Social Roles of Teachers and Pupil Achievement," published in the *American Sociological Review*, Vol. 8 (August, 1943), pp. 389–393. This paper with all the data and calculations on which it is based may be found in the writer's Ph. D. thesis by the same title on file in the University of Wisconsin Library. Much credit is due Dr. T. C. McCormick for assistance and suggestions on the study here reported.

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[1] Finney, Ross, *A Sociological Philosophy of Education*, New York: MacMillian Company, 1928, p. 57.

[2] Tuttle, Harold S., *A Social Basis of Education*, New York: Crowell Company, 1034, p. 8.

[3] Waller, Willard, *Sociology of Teaching*, Wiley, New York, 1932, p. 6.

cators that the sort of social relations which the teacher has with the extra-school society influences his effectiveness in the teaching role. Because of this belief teachers are forced to play a prescribed role in the larger social groups. This may or may not be justified.

Such a definition of the teacher's role in society is evidence of the importance which society places upon its educational system. The school performs only a part of the larger educational function, the transmission of the culture, but the community takes care to supervise its activities. This is probably due, as Bear points out,[4] to the fact that the school is supplementary to other institutions. The school was instituted by other social agencies, such as the church, the state, the family, in order to relieve them of some of the responsibility and detail in the transmission of culture.

The major hypothesis which grows out of the above discussion may be stated as follows: *Certain social and social-psychological factors are related to teaching ability.* Teaching ability is measured by mean gains in pupil information, unless otherwise indicated. The reasons for using such a criterion will be presented in Section II. The specific social factors which will be investigated include: the teacher's relationship with his students, his age and marital status, his role in the community, his role in the school, his attitude toward his work, his social adjustment, and the administrator's opinion of the teacher.

Because of the custom of having administrators and pupils rate teachers with regard to ability, it was decided to test two similar but minor hypotheses, viz., (1) Certain social factors are related to teaching ability as rated by administrators' and pupils' ratings of teaching ability, and (2) Administrators' and pupils' ratings of teaching ability are correlated with ratings of ability as measured by gains in pupils' information.

In the first of these the same factors are examined that were in the major hypothesis. The second is another attempt to determine if administrators and pupils can rate teaching ability as objectively measured.

[4] Bear, Robert M., *The Social Function of Education*, New York: MacMillian, 1937.

SECTION II

INSTRUMENTS, SOURCES OF DATA, AND METHODS OF ANALYSIS

The Measurement of Teaching Ability

The first methodological problem in the investigation was that of setting up of a criterion of teaching efficiency. As has been stated in the introductory section, there is as yet no agreement on the criteria of teaching efficiency. The early studies used all sorts of rating devices; the later ones have more generally turned to various measures of pupil gains.[5]

The criterion of teaching ability.—Mean gains in pupil information (in this case gains in history information, since only United States History teachers were used) were selected for use. This choice was made for several reasons. First, the measurement of information has been the most valid and reliable of the various measures used. Second, various standardized tests of school subject matter are readily available for use in measuring gains in information. Third, gains in pupil information are universally accepted as one of the criteria of teaching ability. Fourth, gains in information are also a measure of the basic social function of education, transmission of the culture.

The use of such a single criterion of teaching ability has the weakness that it does not include all the outcomes of teaching. Rather generally educators consider it important that teaching should result in the acquisition of a set of moral or ethical precepts and habits. There is also the somewhat overlapping concept that teaching should result in a sound adjustment of the child in the society of which he is a part. It is conceivable that a teacher might be initiating a considerable gain in the pupil's information at the expense of the child's satisfactory social adjustment.

The gains in pupil information were obtained by two forms of the Indiana United States History Examination.[6] These tests, which have been prepared and standardized

[5] See Studies: Leon E. Rostker, *Measurement and Prediction of Teaching Ability*, Doctor's Dissertation, University of Wisconsin, Madison, Wis., 1939.

Lee H. Mathews, *Qualities Associated With Teaching Efficiency*, Doctor's Dissertation, University of Wisconsin, Madison, Wis., 1939.

R. V. LaDuke, *The Measurement of Teaching Efficiency*, Doctor's Dissertation, University of Wisconsin, Madison, Wis., 1941.

[6] See Appendix I of original thesis on file in the library of the University of Wisconsin.

by the State High School Test Committee,[7] are widely used in the state. The coefficient of reliability between the two forms of the test after being corrected for attenuation by Spearman's formula[8] was .92.

The mean gain score in pupil information for each teacher was obtained by taking the difference between the mean pre-test score and the mean post-test score.

Distribution of mean gain scores.—The mean pupils' gain in information scores for the 66 teachers in the study ranged from 2.29 to 43.47. The mean of these means was 18.95; the standard deviation 9.42. The distribution was quite skewed to the higher end of the scale and was slightly flatter than the normal curve.[9] The tests of significance indicated only a bare probability that the distribution might be a random sample of a normal universe.

Classification of teachers by mean gain scores.—The procedure used in rating the teaching ability of the teachers as measured by mean pupils' gain in information scores was based on the above calculations. Since a five-category rating was desired, the teachers whose pupils' mean gain scores fell outside the range of the mean plus or minus one standard deviation were given the extreme ratings Very Superior and Poor.[10] Ten teachers were given the highest rating and 12 the lowest by this method. The remainder of the scores fell in the plus or minus one standard deviation range, 7.6–27.4. This range was divided approximately equally into the three middle categories. The lowest one, 7.6 to 14.1, was called Below Average and included 12 teachers. The middle one, 14.2 to 20.8, was termed Average and included 22 or just one third of the teachers. The upper of these three middle classes was termed Superior. It included those 10 teachers whose scores fell between 20.9 and 27.4. It so happened that there were natural breaks in the scores at these division points, so that they could roughly be grouped into the intervals, 2–7, 8–13, 14–20, 21–28, and 29–43. This classification of the teachers is shown in the following table:

TABLE I

RATING OF 66 TEACHERS BY MEAN GAIN SCORES

Rating of Teachers	Range of Mean Gain Scores	Weighted Mean of Mean Gain Scores	Number Teachers	Code No.
Very Superior	29–43	36.049	10	1
Superior	21–28	24.886	10	2
Average	14–20	17.411	22	3
Below Average	8–13	11.231	12	4
Poor	2–7	5.353	12	5
Totals	2–43	18.052	66	

The validity of the criterion of teaching ability.—Since mean gain scores were used to measure teaching ability, it was necessary to be sure that the differences in mean gain scores were due to differences in teaching rather than to various factors such as intelligence differences, previous knowledge of history, variation in subject matter, length of term or session, size of school, or size of classes. As many as possible of these factors were eliminated in the selection of the schools and teachers studied. Thus high school United States History teachers were selected because the course of study and the classification of pupils taking the course showed little variation in the schools of Indiana. The pupils whose gains were measured included only high school juniors as classified by the teacher. This eliminated most of the variation which might have been due to academic maturity of the students. At the same time it assured that the mean age of each teacher's students would be about the same. This was verified by the calculation of the mean ages. It was found that these were all between 16 and 17 years. This variation in the mean ages of students was so small that any further tests of relationship between mean ages and mean gains was considered unnecessary.

In order to eliminate wide variation in cultural background and teaching equipment, the

[7] The tests were used with the permission of Dr. H. H. Remmers, Purdue University, Chairman of the Committee.

[8] $r_{x1} = \frac{\sqrt{r_{x1\,y2} \cdot r_{x2\,y1}}}{\sqrt{r_{x1\,x2} \cdot r_{y1\,y2}}}$. The calculation for this test of reliability will be found in Appendix of the original thesis.

[9] See McCormick, T. C., *Elementary Social Statistics*, New York: McGraw-Hill Co., 1942, pp. 165–168 and 258–259 for seen in Appendix II of the original thesis.

[10] There was one exception to this rule. It was a teacher whose score was 28.07. Since the next highest score was 31.83 and the next lowest 27.4, it seemed advisable to classify it in the second category.

schools in which the study was to be made were carefully selected. For this reason only rural consolidated township high schools were used. These were located in twelve north central Indiana counties which are relatively homogeneous in that there are no large cities located in any of them. A further check of this sort was the one concerned with the size of the school. Since all were rural schools, none was very large, but they did vary in size from forty-five to one hundred-seventy. The size of the school was not significantly correlated with the mean gains in pupil information, however. The Pearsonian r between mean gain scores and size of the high school was .06. The probability of this being a real rather than a chance correlation was so small that the variation in the size of the schools may be disregarded.[11]

In a similar way the size of the classes varied from eleven to thirty-four students. Here again there was no significant correlation between the size of the class and the mean gain scores. This is indicated by a Pearsonian r of —.007.[12]

The text used in all cases was the state adopted text, and, as far as could be observed, the teaching equipment was relatively similar in all cases. This observation in addition to the test previously cited leads to the conclusion that the external factors in the culture and the learning situation had no effect on the gains in pupil information.

Next we tested the hypothesis that differences in gain scores were independent of differences in the previous average knowledge of history. The mean pre-test score in history information was used as the measure of the previous knowledge of history. Analysis of variance was then applied to the mean pre-test scores, as shown in Tables III–IV, Appendix II.[13] The variance of the mean pre-test scores within the classes of teachers (as classified by mean pupil gains in information) was checked against the variance between the classes of teachers. If the above hypothesis were true, the variation between columns of Table III would not be significantly greater than within the columns as determined by analysis of variance.[14]

The variance between columns was found to be 18.5 and that within the columns 42.7. The ratio of the larger to the smaller was 2.2, which, we find from Snedecor's table of F,[15] indicates that this difference would occur many more than five times in 100 by chance.[16] The hypothesis that the mean gain scores were independent of mean pre-test scores is, therefore, not disproven.

Although the hypothesis that differences in mean gain scores were independent of differences in previous history information was not rejected by the test just described, the fact that a significant negative correlation has frequently been found between pre-test and gain scores when computed for individual students led us to check this result in another way. The Pearsonian r between mean pre-test scores and mean gain scores for the 66 teachers was only —.058. Any correction in mean gain scores on account of pre-test scores was, therefore, considered unnecessary.

Since intelligence[17] is generally found to be correlated with gains in pupil information, some attention was given to the possible effect of this factor. We considered a correction for differencies in intelligence unnecessary for several reasons. We were not interested in the gains of individual pupils, but rather in the gains of all pupils of each teacher. The similarity of the schools and the communities in which the teachers were located suggests that the mean intelligence of the students in the junior classes of these schools would be very much the same. The mean I.Q.'s of the students of 12 teachers which were available verify this assumption. These means range from 95–105, with a standard deviation of 2.1 and a mean of 100.77. The Pearsonian r between these 12 mean gain scores and mean I.Q.'s was .10. This indicates that the small differences in mean intelligence scores have little or no relation to mean gains in information. The analysis of variance described above tends to verify this conclusion since previous knowledge of history is probably a more direct

[11] This calculation will be found in Appendix II. See original thesis on file in the University Library, University of Wisconsin.

[12] This calculation is found in Appendix II of the original thesis.

[13] See original thesis on file in the University Library, University of Wisconsin.

[14] See Lindquist, E. F., *Statistics in Educational Research*, New York: Houghton–Mifflin Company, 1940, Chapter V, pp. 85–179 for discussion of the methodology.

[15] Ibid., pp. 61–65.

[16] This test is really unnecessary because it will be noted that actually the larger variance is within the columns and no reference would need to be made to the table of F.

[17] By intelligence we mean that which we measure with our intelligence tests. This is no doubt a measure of achievement in part.

measure of the pupil's ability to learn history than were differences in intelligence.

Subjective ratings of teacher ability.—In order to test the minor hypotheses mentioned in Section I, it was necessary to obtain administrators' and pupils' subjective ratings of the teacher's ability. This was done on a simple five point scale on which the ratings were very superior, superior, average, below average, and poor. This scale was included in the pupil and administrator questionnaires which will be found in Appendix I of the original thesis.

The Instruments Used in Gathering Social and Social-Psychological Data

Three different questionnaires were used to obtain the desired data concerning the independent variables which we have termed social and social-psychological factors. One of these questionnaires was answered by the American History students of each of the sixty-six teachers (Pupil Questionnaire), one by teachers (Teacher Questionnaire), and one by the superintendents and the trustees who hired the teachers (Trustee-Administrators' Questionnaire). A copy of each of the questionnaires will be found in Appendix I of the original thesis.

Pupil questionnaire.—The items in the Pupil Questionnaire in which are the ones in which we are primarily interested are concerned with various aspects of the relationship between teachers and their pupils, including the pupils' reaction to the teacher's personality, and the character of their personal relationship. The fourteen items were chosen for several reasons. In general they were selected as a result of the writer's earlier research in various aspects of teacher-pupil relations.[18] Some items were selected which these earlier studies indicated were related to teaching ability. Others were suggested by a number of educators as possibly related to teaching ability. Several of the items were suggested by the work of Frank Hart.[19]

To all but one of the items there are three possible answers. This form of questionnaire was used because it gave more information and made possible more accurate analysis than a single yes-no questionnaire would have provided.

Teacher questionnaire.—Information on the role of the teacher in the community and the school, as well as personal data on the teachers, was obtained in interviews with the teachers. In order to have comparable data, teacher's questionnaires were used as a guide, and the answers to the questions were checked by the interviewer during the interview.

This questionnaire was designed to obtain two general kinds of information. The first of these might be called personal data, and includes the teachers' attitudes toward their work and items of age, sex, health, and marital condition. The second general type of items deals with the teacher's participation in the community and school life.

The items in this questionnaire are primarily concerned with subjects which are frequently made the basis for employment or dismissal of teachers in the rural schools of Indiana and other states. For this reason it is important to know whether or not they are related to teaching ability. A few remaining items give information regarding factors that have been represented as determinants of pupil learning.

Trustee-administrators' questionnaire. — In the Indiana rural consolidated schools the teachers are hired by the township trustee with the consent of the county superintendent of schools. The purpose of this questionnaire was to determine if the factors which these hiring officials frequently use as the basis for employment and dismissal are related to teaching ability as measured by gains in information.

In this questionnaire are also seven items which are frequently found on teacher rating scales and are concerned with the teacher's relationships to the students and others in the school situation. It has been demonstrated[20] that administrators' ratings are not highly correlated with pupil gains when ratings on several items are taken together. The purpose here was to see if the hiring officials' opinion of the teacher on any one of these traits was related to gains in information.

The third part of the questionnaire duplicates in part some of the items in the Teacher

[18] Brookover, Wilbur, "Teacher-pupil Relations and Their Influence on Teaching Ability," *Journal of Educational Research* (December, 1940), pp. 272–287, and unpublished data on *Teacher-Pupil Relations of Twenty Elementary Teachers in Wisconsin.*

[19] Hart, Frank, *Teachers and Teaching by 10,000 High School Seniors*, Macmillan Company, New York, 1934.

[20] A. S. Barr and others, *The Measurement of Teaching Ability*, Madison, Wis.: Journal of Experimental Education Monograph, 1945.

Questionnaire. Since all of them are at times the basis for continuance or discontinuance of employment, it was considered important that we have the hiring officials' opinions also.

The final section of the questionnaire was included for use in testing the hypothesis that administrator ratings of teaching ability are correlated with gains in pupil information.

The Teachers Studied

As previously indicated, the teachers in this study were sixty-six Indiana high school American History teachers. These teachers were located in rural consolidated high schools in twelve north central Indiana counties. American History was selected as the subject matter for reasons previously indicated.

Men teachers were used because comparatively few women teach American History in Indiana high schools. Women teachers would ordinarily be preferred in such a study because most public school teachers are women. However, the courses which women commonly teach in Indiana do not meet the criteria necessary for the adequate control of such a study.

Originally the study was started with seventy-six teachers. Ten of these were eliminated for one reason or another. Some had too few eleventh grade students; one was dropped because his class was much larger than any of the others; some failed to complete the program. We have already indicated that the remaining sixty-six teaching situations were relatively homogeneous and that the gains in pupil information were therefore comparable as a measure of teaching ability.

Some caution should be used in generalizing from the results of this study. The limitations of time and money made it necessary to confine the inquiry to a relatively small group of male history teachers in the high schools of Indiana. Additional studies are needed to show how well the findings apply to other kinds of teachers and to teachers in other parts of the country.

Gathering the Data

The county superintendents of the twelve counties in the study were contacted soon after the opening of the schools in September, 1940. At this time permission to carry on the study was obtained, and the superintendent's cooperation solicited. As rapidly as possible thereafter, the teachers and school principals were interviewed and their cooperation requested. Only one refused to cooperate, although four failed to complete the study. The pre-tests in history information were delivered to the teachers at the time of the interview, and all were instructed to give the tests on October 10, 1940, and return the completed tests to the writer for scoring.

Beginning about November 15, 1940, the writer and his assistant, Edna Brookover, called at each of the schools to administer the Pupil Questionnaire, to interview the teacher to obtain the data for the Teacher Questionnaire, and to deliver the post-tests in history information. This work was completed by December 15, 1940, and the post-tests were given on December 20.

The teacher was asked to leave the school room while the students answered the Pupil Questionnaire. The pupils were assured that the teacher would not see their papers, and they were also instructed not to sign their names.

Following the administration of the Pupil Questionnaire, or concurrently with it, if the writer and his assistant were working together, the teacher was interviewed and the items on the Teacher Questionnaire checked. Prior to beginning this work the two interviewers had planned carefully the instructions to the students and procedure in the interview. Definitions were checked carefully so that they agreed on the meaning of each item in the questionnaire.

Since most of the teachers used the post-test in history information for their semester examination, they scored the tests. They were instructed how to do this and identical keys were provided for scoring. The final scores of all the pupils were immediately mailed to the writer. After receiving them, the writer made a post card check of all teachers whose final scores varied very much from those of the others, and a sample of teachers was asked to re-score their tests to be sure that the scoring was correctly done. In only one case did the teacher find an error in his first method of scoring.

At the time of the first interview, the superintendents' assistance was solicited and in each case granted. During the month of December the Trustee-Administrator Questionnaires were delivered to the superintendents, and they were instructed to fill out one for each of their teachers in the study. At their

convenience the superintendents contacted the various school trustees in their counties and had each of them also fill out a questionnaire for the teacher whom they had employed. In this way the superintendent and the trustee independently rated the teachers on the same items.

Methods of Analysis

Because the data in this study are primarily qualitative, it was necessary to use non-quantitative measures of relationship. To test the hypothesis that social factors are related to teaching ability, the data were set up in contingency tables with teaching ability as one variable and some one of the various social factors as the other variable. The Chi-square test was then applied to determine the probability that differences as large as those between the observed and the expected cell frequencies would occur by chance.[21] If the probability was sufficiently low to indicate a real relationship, the coefficient of contingency (c) was calculated to determine the amount of the relationship.

This technique of analysis was supplemented in some cases by other methods. These will be mentioned in the appropriate places. In testing the minor hypotheses some variations in formulas were necessary, but the same basic methods were used.

Since neither the Chi-square test nor the coefficient of contingency indicates the direction of a relationship where one exists, it must be determined in other ways. In many cases the direction is easily seen by inspection of the data and the direction of the signs of the differences between the observed and theoretical frequencies. In more complicated cases where the table contains several cells and the relationship is not linear or where variations in direction are present, the following simple method was devised. First, cells with lower frequency were combined with cells in the next row or column to smooth out the minor variations in the direction of the correlation. Second, the proportion of the cases in a given column was calculated (i.e., the proportion of the students who rated their teachers always friendly). Third, the positive or negative deviations of corresponding low proportions from the above mean P was then determined. Fourth, points indicating the positive deviations were plotted to determine the direction of the relationship.

[21] See McCormick, T. C., *Elementary Social Statistics*, New York: McGraw-Hill Co., 1941, pp. 203–217 for discussion of the methods used. The tables and calculations will be found in Appendix III. The formulas used are shown in Appendix III. See original thesis on file in the University Library, University of Wisconsin.

SECTION III

RESULTS OF THE ANALYSIS: THE MAJOR HYPOTHESIS

The Relation of Social Factors to Pupil Gains in Information as a Measure of Teaching Ability

The major purpose of this study is to determine whether or not there is any relationship between a number of social factors and teaching ability, as measured by mean gains in pupils' information, and to measure the amount of that relationship. We have previously described the techniques and questionnaires by which we obtained the data on the social factors. These factors include (1) teacher-pupil relations, (2) the teacher's role in the community, (3) the teacher's role in the school, (4) the teacher's age and marital status, (5) the teacher's attitude toward his work, (6) the teacher's social adjustment, and (7) the employers' opinions of the teachers. The results of the investigation of the relation of each of these to teaching ability as measured by mean gains in pupil information are presented in the following sections.

Teacher-pupil relations and teaching ability.—The data on the teachers' relationship with their students were obtained from the replies of approximately 1,275 pupils to 15 questions in the Pupil Questionnaire.[22] The analysis of the association between these indexes of teacher-pupil relations and teaching ability led to the following conclusions.

There are low ($c = .22$ or less) but significant and consistent negative correlations between the pupils' answers to seven of the fifteen questions in the Pupils' Questionnaire and mean gains in pupil information. These seven questions are: (1) "Is this teacher friendly when you meet him?" (2) "Does this teacher join in your recreational activities?" (3) "Do you admire this teacher personally?" (4) "Do you like to have this teacher join in your social and recreational activities?" (5) "Do you think this teacher is fair?"

[22] This questionnaire will be found in Appendix I. The method of analysis is described in Section II. The tables and calculations are presented in Appendix III. A summary of the statistical results is shown in Table I, Appendix III. See original thesis on file in the University Library, University of Wisconsin.

(6) "Is this teacher helpful to you in your work?" (7) "Do you confide in this teacher and tell him your troubles?" In each of these seven cases, the teachers whose students most frequently rates them favorably (i.e., "always friendly," "often helpful," "admire very much," etc.) were less effective teachers as judged by mean gains in pupil information than those who were rated less favorably. Favorable response to each of these questions seems indicative of a congenial personal relationship within which the interaction is relatively free and pleasant to the student. Therefore the inference is that among this group of men United States History teachers of eleventh-grade students, the ones who have the closer, or more congenial, personal relationship with their students tend to be less effective teachers of history.[28]

Three other questions show slight but significant curvilinear correlations with mean gains in information: (1) "Do you respect this teacher for his academic ability?" (2) "Do you think this teacher is a sissy?" (3) "Do you think this teacher is peculiar?" The patterns of relationship for these three factors are somewhat varied, but when the cells of the tables are combined to overcome minor variations in the direction of the relationship, there is a curvilinear relationship between pupil gains in information and respect for academic ability. Teachers above the average in pupil gains are more respected than teachers of less than average effectiveness, but the latter are more respected than those of average effectiveness. This suggests a somewhat blurred positive relationship between the pupils' respect for their teachers and the pupil gains credited to the latter. A similar relationship exists between sissiness and teaching effectiveness. Ratings of "very" and "somewhat" "sissy" are more common for average teachers than either better or poorer ones. Superior and very superior teachers, however, are more frequently considered "sissy" than the below average and poor teachers. If "sissiness" is regarded as an undesirable trait, the more effective teachers received the less desirable ratings.

Some care should be exercised in interpreting the answers to the third question just above because of scattered distribution and variations in direction. However, ratings of "very" and "somewhat" peculiar are most frequently given to very superior and superior teachers; while ratings of "not at all" peculiar are most frequently given to below average and poor teachers.

It is safe to assume that students do not like the teachers whom they consider sissy or peculiar. These relationships in which average and above average teachers are more frequently rated as sissy and peculiar than less effective teachers, therefore, tend to substantiate the other negative relationships noted above. They also seem to indicate that teachers who have close personal relations with their students tend to be less effective teachers than those who are less congenial. The positive correlation between respect for academic ability and teaching effectiveness shows that the students respect the better teachers for their effectiveness even though they consider them unfriendly, peculiar, "sissy," or possessed of other undesirable traits.

The pupils' opinions of the teachers' personal appearance were obtained by the question, "Do you think this teacher is good-looking?" Again these ratings of personal appearance show a low but genuine relationship to teaching ability. "Good-looking" teachers are less effective than those whom the students do not consider "good-looking." However, the direction of this relationship varies with the age of the teachers. For teachers 38 years old and over this negative relationship holds, but among the teachers 28 to 37 years of age the relationship is positive with the "very much" "good-looking" teachers being more effective than those who are less "good-looking." There is no significant relationship between appearance and effectiveness among the teachers under 28 years of age.

Although the length of the pupils' acquaintance with the teachers is related slightly to teaching effectiveness, little meaning can be attached to it, since an acquaintanceship of two to four years is less often associated with effective teaching than either longer or shorter acquaintance.

The students' replies to the other three questions in the Pupil Questionnaire regarding their opinions of the teachers were not related to teaching effectiveness. These questions were: (1) "Does this teacher scold you?" (2) "Is this teacher sarcastic when speaking to you?" (3) "Does this teacher have a sense of humor?"

[28] In a later section we will note that the age of the teachers is related to teaching ability. For this reason, the correlations in this section were checked with age controlled. Where such control affected the decisions in any way, it is discussed. In other cases it is not mentioned.

The general conclusion resulting from this section of the investigation is that for the given group of United States History teachers a low but significant negative association exists between teaching ability, as measured by mean gains in pupils' information, and pleasurable personal relationship which the teacher has with his pupils.

This result is quite interesting in view of the findings of earlier studies[24] where LaDuke found that teachers who were more considerate of others tended to be less effective teachers. The present findings seem to support LaDuke's inconclusive results which he warned the reader not to accept. Other studies[25] have indicated a positive relationship between the degree of teacher-pupil relations and ratings of teaching ability. This position has long been taken by educators who consider friendliness, helpfulness, and other evidences of congeniality to be associated with good teaching. Such a position is not supported by the results of this study. It is conceivable, of course, that such factors may be positively associated with other criteria of good teaching than the one we have used here. It is possible that the teachers whom the students consider especially friendly, whom they most frequently confide in and admire, and who join in their recreation may have other beneficial effects on their pupils; data are not here presented on these relations.

Relation of the teacher's age and marital status to teaching ability.—Information concerning the age and marital status of the teachers was obtained through interviews with the 66 teachers.[26] Both age and marital status were found to be related to teaching ability. The age group 27–38 years of age was superior to either the older or younger group in mean pupil gains in information. Married men were superior to single men. However, since age and marital status are significantly related,[27] an attempt was made to test the relation of each to teaching ability while the other was controlled. Unfortunately, the frequencies were too small to allow a definite decision regarding the relation of either age or marital status to teaching ability independent of the other.

[24] LaDuke, *op. cit.*

[25] See Hart, *op. cit.* and Brookover, *op. cit.*

[26] The questionnaire which was used in the interview will be found in Appendix I. The calculations and tables upon which this analysis is based are included in Appendix III. See original thesis on file in the University Library, University of Wisconsin.

[27] The coefficient of contingency was .59.

The correlation analysis indicates that the teaching ability of this group of teachers increased with age up to about 38 years, after which there was an apparent decline. The increase in effectiveness may be due to various factors which are associated with age. Marriage may be one, and experience is no doubt involved. The decline in average ability after the age of 38 may be explained by the fact that many Indiana teachers move from rural consolidated schools (such as the ones studied) to city systems after a few years' experience. Many also go into other occupations. These may be the superior teachers. This latter is suggested although not statistically verified in this study.[28] It is quite possible that older teachers simply become less effective.

The teacher's role in the community in relation to teaching ability. — Preliminary study by the writers[29] had indicated that teachers who lived in the neighborhood of the school were superior to those who did not. This plus the fact that employing officials in Indiana rural schools frequently prefer "home" teachers or require their teachers to become residents of the community led to the investigation of the relation of such factors to teaching ability. Data on the teacher's place of residence and acquaintance with the community were obtained in the interview with the teacher.[30] The analysis of these data fails to show any relationship between previous residence, length of residence in the community, or length of teaching tenure and teaching ability. Neither is the proportion of the patrons known by the teacher significantly related to gains in pupils' information.

In view of these results the hiring of home teachers or requirement that teachers live in the community cannot be justified on the grounds that such teachers are more effective teachers of information; they may be more effective in other respects.

In many rural communities in Indiana, as in other states, teachers are not only required to live in their community, but are expected to attend church and participate in various other activities and organizations of the community in which they teach. Analysis of the

[28] See teachers attitude toward teaching discussed later.

[29] Unpublished data on a group of Wisconsin one-room elementary school teachers.

[30] Questions: Part I, 3–7, Part II, 6, and Part III of the Teacher Questionnaire (Appendix I) were used to obtain the data. The analysis and calculations are shown in Appendix III. See original thesis on file in the University Library, University of Wisconsin.

data concerned with the teacher's participation in such activities again fails to show that such factors are related to the quality of teaching as measured by gains in pupil information.

The teacher's role in the school in relation to teaching ability.—Since the schools in this study are located in rural communities and therefore are comparatively small, the teachers frequently have other than straight teaching duties. In all of the schools the principals are part or full time teachers; the band directors frequently teach other subjects, and the athletic coaches are also full time teachers. As a result, some of the teachers in this study also performed other functions. Eleven were the principals of their schools, 37 were athletic coaches and several others supervised other major extracurricular activities.

Numerous educators suggested to the writer that the responsibilities involved and interest in these other duties resulted in less effective teaching by these teachers. This is most frequently maintained with regard to athletic coaches. The analysis of the data for this group of teachers fails to show that extracurricular activities of the teachers are in any way associated with teaching ability. The data on administrators were insufficient for analysis.[31]

For the same reason we could not test the idea that teachers should be required to attend all the school functions such as athletic contests, musicals, and dramatic presentations because parents and teachers thereby become better acquainted and this makes for more effective teachers.

Teachers' attitudes toward teaching in relation to teaching ability.—Previous investigators[32] have tested the relationship between the attitude of teachers toward teaching and their teaching effectiveness with varying results. Since such attitudes are so widely considered important in teaching ability, some information concerning them was obtained in the interviews with the teachers in this study. They were asked to what extent they enjoyed their work and whether or not they were seeking other employment. So few teachers were seeking other employment that the responses to neither of these questions could be proved to be significantly associated with teaching ability as measured by mean gains in information. It should be mentioned, however, that five of the nine teachers who were seeking other employment were very superior and superior teachers and only one was below average.

The social adjustment of teachers in relation to teaching ability.—Many educators have expressed the opinion that a considerable proportion of public school teachers are ineffective because they are personally and socially maladjusted.[33] Since LaDuke and Matthews[34] failed to find significant correlations between ratings on social adjustment scales and teaching effectiveness, a new technique for detecting social maladjustment was tried in this study. Indications of maladjustment or neurotic tendencies were sought by a series of rather direct questions. During the interview with the teachers they were asked: Do you feel that your superiors are "riding" you or have it in for you? Do you feel that you are not appreciated by the community? Does poor health interfere with your efficiency while on the job? and other similar questions. In the case of the two questions concerning periods of depressions and the feeling of not being appreciated by the community, the responses were varied but did not show a significant relationship to teaching ability. On the other questions the responses of practically all teachers were identical, which indicated no association.

It is now apparent, however, that such direct questions as these used in a short interview are not adequate criteria of social adjustment. A much more complete psychiatric interview is necessary for satisfactory information on social adjustment.

Employers' ratings of teachers' characteristics in relation to teaching ability.—It is commonly assumed that expert school administrators can distinguish good from poor teachers by subjective ratings of qualities or characteristics which are thought to be asso-

[31] The Chi-square test is not valid here because of the low theoretical frequency in some cells when used to test the hypothesis that principals are superior or inferior to other teachers. The distribution as shown in Table XXXVI of Appendix III gives no indication that there is any relationship. See Appendix III of original thesis on file in the University Library, University of Wisconsin, for the other calculations in this section.

[32] See Rostker, *op. cit.*, Matthews, *op. cit.*, and LaDuke, *op. cit.* See Appendix III of original thesis for data on this question.

[33] See Kimball Young, *Personality and Problems of Adjustment*, F. S. Crofts, 1941, and Helen Ann Stewart, *Personality Maladjustment Among Teachers*, Unpublished Manuscript, Indiana State Teachers College, Dept. of Ed., 1942, for surveys of the literature on this subject. See Appendix III of original thesis for present data on the subject.

[34] LaDuke, *op. cit.* and Matthews, *op. cit.*

ciated with good teaching. Numerous teacher rating scales have been widely used as a result of this assumption. It has been shown that ratings on such scales are not significantly correlated with objective measures of teaching ability.[35] In those investigations composite ratings on several traits were used as the subjective ratings of ability. In contrast the present study checked each of seven ratings against gains in information. Both the superintendent and trustee who employed the teacher were asked to rate the teacher on each of seven traits which had been selected from teacher rating scales. These included ratings of: friendliness, cooperativeness, tactfulness, enthusiasm, stimulation of students, sympathetic understanding of students, and fairness in treatment of students.[36] The ratings on none of these traits by either employer proved to significantly correlated with pupil gains in information. Since these results support the conclusions of other studies, it can safely be said that the employers' ratings of teachers on these seven traits are not related to gains in information. If this conclusion is generally true, the present basis for employing teachers certainly cannot be valid.

SECTION IV

RESULTS OF THE ANALYSIS: THE MINOR HYPOTHESES

In this section we shall note the relationships between the various social factors considered in this study and the ratings of the teachers made by employers and pupils and the relation of these ratings to the objective measure of teaching ability described earlier. These relations are of minor importance, because it has been demonstrated that subjective ratings are of questionable value in rating teaching ability. However, some information of interest has resulted from the analysis, and previously known facts have been verified. The general methods employed here are the same as those used to test the major hypothesis, with only a few modifications due to the nature of the data.

[35] See Section I and LaDuke, *op. cit.*

[36] The exact form of the questions can be found in Part II of the Questionnaire for Trustees and Administrators, Appendix I. The data in Part III of the questionnaire were obtained for purposes of testing the minor hypothesis which will be discussed later. The tables and calculations are in Appendix III. See original thesis on file in the University Library, University of Wisconsin.

Relation of Social Factors to Employers' Ratings of Teaching Ability

The first of the minor hypotheses to be tested was that certain social factors are related to the ratings of the teachers' ability made by the superintendents and trustees. The data on the social factors were obtained (1) by means of interviews with the teachers, and (2) from the Administrator-Trustee Questionnaire.[37]

Employers' ratings of teacher traits in relation to their ratings of teaching ability.—The relation of the trustees' and superintendents' ratings of their teachers on seven teacher traits to their own ratings of the teachers' effectiveness may be discussed as a unit. The teacher traits, which had been selected from teacher rating scales, included friendliness, cooperativeness, tactfulness, enthusiasm, stimulation of students, sympathetic understanding of students, and fairness. In all cases where valid statistical tests could be made,[38] the ratings on these traits made by a superintendent or trustee are significantly (or nearly so) related to his ratings of teaching ability. Although none of these traits shows any correlation with pupil gains in information, it is obvious that the employing officials regard them as evidence of ability.[39]

The teacher's role in the community in relation to the employers' ratings of teaching ability.—Although the trustees and superintendents frequently insist upon employing "home" teachers in preference to "foreigners" where possible, there is no evidence that they consider the "home" teachers superior. Furthermore, the employers frequently indicate that the teacher who will live in the community during his tenure is more desirable, but this is not reflected in their ratings of ability. So, although these employers do not consider those who live in the community any better teachers than those who do not, they do use place of residence or willingness to take up residence in the community as a criterion for employing a teacher.

The teachers who have remained in the community five years or longer are rated sig-

[37] The Teacher Questionnaire and the Trustee-Administrator Questionnaire will be found in Appendix I. The results of the analysis discussed in this section will be found in Appendix IV, Tables I–VI. See original thesis on file in the University Library, University of Wisconsin.

[38] In four of the fourteen tables valid Chi-square tests could not be made because of the low theoretical frequency in some cells. Three of the remaining Chi-square values are slightly above the level of significance ($P = .06$).

[39] See Section III.

nificantly higher as teachers by both trustees and superintendents. This may be some indication of the value they attach to the teacher's role in the community; but it may mean that the employers simply continue to reemploy those teachers whom they think are good.

There is no consistent pattern of relationship between the various indexes of the teachers' participation in community activities and the employers' ratings of teaching ability. Church attendance in the community is positively correlated with the trustees' ratings, but not with superintendents'. On the other hand, teachers who know over half of their patrons are rated higher by the superintendents, but not by the trustees. The same is true of teachers who associate with the townspeople. It is interesting to note, however, that the ratings of neither trustees nor superintendents are significantly correlated with the teachers' participation in the organized activities of the community other than the churches.

The great variation in the relationship of ratings of ability to these indexes of community participation makes any conclusion regarding them rather tenuous. But since place of residence and the extent of participation in the activities of the community are not significantly related to teaching ability as measured by either gains in information or by employers' ratings, there is evidently little justification for the use of such criteria in selecting teachers.

Teacher's role in the school in relation to employers' ratings of ability.—The school principals among this group of teachers were considered superior in teaching ability to other teachers by the superintendents. They also rated teachers who had no important extracurricular functions above those who did have. The trustees' ratings show similar relationships, although the statistical tests are inconclusive.[40] The fact that very few teachers do not attend extracurricular functions of the school makes valid statistical analysis of the data on this subject impossible.

Employers' opinions of the teachers' roles in relation to their ratings of teaching ability.—Since the teacher's concept of his participation in community and school activities might not be the same as his employers' opinions of his role in these groups, the latter were checked against the trustees' and superintendents' ratings of teaching ability. These employers' ratings of ability are not related to their opinions of the teachers' participation in community activities. However, the superintendents rate those teachers whom they think attend extracurricular school functions and those whom they believe participate in student recreational activities higher than those who they do not think take part in such activities.[41] Thus the superintendents apparently feel that good teachers should participate in school functions although they rate those who supervise extracurricular activities lower in teaching ability.

Teachers' salaries in relation to employers' ratings of ability.—Since the salaries of the teachers varied with the type of position held by the teacher, it was necessary to control the type of position in order to test the relation between salaries and ratings of ability. The small number of principals (11) and of teachers who supervised no important extracurricular activities (14) made it impossible to check the relationship in their cases. Within the larger group that directed such activities as athletics, band, and speech the superintendents rated those who received salaries of $1300 or more higher than those who received less. The trustees, however, gave the two salary groups about the same rating in teaching ability.

The teacher's age, marital status, and length of acquaintance with employers in relation to employers' ratings of teaching ability.—The age of the teachers, their marital status, and the length of their acquaintance with their employers are all intercorrelated. For this reason we shall consider them together.

The trustees give higher ratings to teachers over 30 years of age and to teachers whom they have known for five years or more. They also rate married teachers somewhat better than unmarried, but not significantly so. None of these factors is related to the superintendents' ratings of ability, although in the case of age, the relationship is almost strong enough to be beyond the range of chance. These results suggest that the superintendents may be a little more objective in their ratings than the trustees and that the latter are gov-

[40] Low frequencies in some cells make the Chi-square tests invalid. The low frequencies result in part from the fact that only 15 teachers were rated average or below by the trustees.

[41] Similar tests of the trustees' ratings were not possible because of the low frequencies in some cells.

erned to a greater extent by their personal acquaintance with the teachers.

Teachers' attitudes towards work and their social adjustment in relation to ratings of ability.—Those teachers who say they enjoy their work very much are rated higher by the superintendents, but not by the trustees. Neither is there any evidence that teachers who are seeking other employment are considered either superior or inferior.

The social adjustment of the teachers, as indicated by their answers to the questions, "Do you ever feel depressed?" and "Do you ever feel that you are not appreciated by the community?" is not related to employers' ratings of ability.

Relation of Social Factors to Pupil Ratings of Teaching Ability

The second minor hypothesis included in the investigation was that certain social factors are related to the pupils' ratings of teaching ability. The data on the social factors were obtained by interviews with the teachers and from the students by means of the Pupil Questionnaire.[42]

Teacher-pupil relations as related to pupil ratings of teaching ability.—The responses of the students to 11 of 15 questions in the Pupil Questionnaire are positively associated with the pupils' ratings of the effectiveness of the teachers. These eleven questions were concerned with the length of the pupils' acquaintance with the teachers, the teachers' friendliness and sense of humor, the pupils' respect for the teachers, the pupils' admiration of the teachers' fairness and helpfulness, the frequency with which the pupils confide in the teacher, the frequency with which the teachers join in the pupils' recreation, and the students' desire that the teachers join in their recreation. The responses to the other four questions were negatively correlated with the pupils' ratings of ability. These four questions dealt with the teachers' "sissiness," peculiarity, use of sarcasm, and frequency of scolding.

These results indicate clearly that the nature of the pupils' personal relationship with their teachers affects their ratings of the teachers' abilities. The more friendly the personal relationship the higher the ratings of teaching ability. This is in harmony with the results of the writer's earlier work[43] and that of Hart[44], who found that the best liked teachers were usually considered the best teachers by the pupils. The high correlations in each of these cases shows that the pupils do not distinguish between their personal liking for a teacher and the teacher's ability. It is worthy of notice that the correlations between nine of these factors and pupil ratings are in disagreement with the corresponding correlations between the same factors and mean gains in information; only one factor, respect for the teacher, is similarly related to pupils' ratings and to pupils' gain in information. Although the students' relationships with their teachers was found to be negatively correlated with the extent of their learning (See Section III), the students apparently feel that they learn more from the teachers with whom they have a close relationship than from those with whom they are less closely associated.

The teacher's age, marital status, and length of acquaintance with pupils in relation to pupils' ratings of ability.—Since the teacher's age, his marital status, and the length of acquaintance with his pupils are interrelated, they are grouped together. The pupils' ratings of teaching ability are positively related to the age of the teachers. The relation between length of acquaintance and pupils' ratings is also positive, as was cited in the previous section. There is also a positive correlation between pupils' ratings of ability and the length of time the teacher had taught in the school. Married teachers are more frequently rated high or low, while single teachers are more frequently given average ratings of ability.

The teacher's role in the community in relation to pupil ratings of ability.—Although long acquaintance with a teacher improves the pupils' ratings of his teaching ability, the students are not influenced by his residence prior to taking his teaching position in the community. Thus the policy of hiring home teachers cannot be justified by pupils' ratings of teachers, by employers' ratings, or by gains in information.

The pupils' ratings are not correlated with the frequency of the teachers' church attendance in the community. However, those teachers who do not participate in other than

[42] The Teacher Questionnaire and Pupil Questionnaire may be found in Appendix I. The results of this section of the analysis may be seen in Appendix IV, Tables VII–XII. See original thesis on file in the University Library, University of Wisconsin.

[43] Brookover, Wilbur, *Teacher-Pupil Relations and Their Effect on Teaching Efficiency, op. cit.*

[44] Hart, Frank, *op. cit.*

church activities are considered significantly better teachers by their pupils than those who do participate in such activities.

Somewhat contrary to the above, we find that students considered teachers who know more than 50% of the patrons, and teachers who have taught in the community five years or more, superior to teachers who have taught a shorter time or know fewer patrons.

It is apparent that no consistent pattern of relationship is indicated by these results. It seems, however, that pupils are favorably impressed in their opinions of a teacher's ability by long association with him.

The teacher's role in school in relation to pupil ratings of teaching ability.—Students rated those teachers who also were principals significantly higher as teachers than those who were not administrators. On the other hand, those teachers who supervised no important extracurricular activities such as athletics, speech, or music were rated higher than those who did supervise such activities.

The teacher's attitude toward his work in relation to the pupils' ratings of ability.—Pupils' ratings of the teacher's ability are related to the teachers' attitudes toward their work. This is indicated by the fact that teachers who enjoy their work very much are rated higher than those who enjoy their work less. Teachers who are seeking other employment are not rated differently from those who seem satisfied with teaching, however.

Teacher's social adjustment in relation to pupils' ratings of ability.—The analysis of the data obtained from the teachers concerning their frequency of feeling depressed and feeling unappreciated by the community indicates that the teachers who are better adjusted to their social situation were considered better teachers by their pupils. Those who "sometimes" feel depressed and those who feel that they are not appreciated by the community are rated significantly lower as teachers.

A Comparison of the Various Measures of Teaching Ability

In view of the wide discrepancy in the ways in which various social factors in this study are related to the different measures of teaching ability, it is of interest to examine the correlation between the measures themselves.[45]

[45] See Table XIII, Appendix IV of original thesis on file in the University Library, University of Wisconsin, for the summary of the relationships between these measures.

Relation between employers' ratings and other measures.—There is a moderately high correlation between the superintendents' and trustees' ratings of teaching ability. However, this may be a spurious correlation, for there is some evidence that these two school officials collaborated in their ratings in some cases, and they had no doubt consulted many times concerning the teacher whom they jointly employed. Employers' ratings also have a slight positive association with pupils" ratings of ability.

Our data, like those of other studies, failed to show any relationship between employers' ratings and pupils' gains in information, an objective measure of teaching ability.

Relation between pupil ratings and mean gains in information.—There is evidence of a low but irregular relationship between pupil ratings of teaching ability and mean gains in information. The average teachers are rated lower by the pupils than either the superior or below average teachers.

Conclusions.—These results verify those of other students in showing that subjective ratings by employers or administrators are of doubtful value as objective criteria of teaching ability.[46] If these results carry any suggestion that pupil ratings might be a valid criterion of teachers' ability, it is clear that considerable further investigation is necessary to establish the fact. Subjective ratings by both employers and pupils are intercorrelated in each instance.

SECTION V

SUMMARY OF RESULTS

The hypotheses examined in this limited study should be further tested under a wide variety of conditions and with varying samples of teachers.

However, the results indicate that in the cases examined, at least, certain social factors are important in determining the effectiveness of the teacher, while most of those which have been considered important are apparently unrelated to teaching ability, as measured by pupil gains in information.

The following general conclusions summarize the results of the investigation.

1. a. Teachers who have the closer personal relations with their students (i.e., friendly, confided in, admired, join in

[46] See LaDuke, *op. cit.*, and Barr *et al. op. cit.*

recreation, etc.) tend on the average to teach them slightly less history as measured by pupil gains in information;

b. But the teachers who have the closer personal relations with their students are considered better teachers by their students;

c. And the teachers whom the employers think have close personal relations with their students are rated higher as teachers by these employers.

2. a. No index of the teacher's role in the community (i.e., length of residence, participation in community activities, church attendance, etc.) is related to his effectiveness in teaching history as measured by pupils' gains in information;

b. Neither is there a consistent pattern of relationship between the several indexes of the teacher's participation in community activities and employers' ratings of teaching ability;

b. Nor are "home" teachers rated more or less effective than "foreign" teachers by either the employers or the pupils;

d. Yet pupils are favorably impressed in their opinions of the teacher's ability by long association with the teacher.

3. a. Pupil gains in information increase with the age of the teacher up to 38 years of age, after which they decrease;

b. But both trustees and pupils rate older teachers as more effective teachers.

4. a. The teacher's role in the school, (i.e., type of position, supervision of activities, etc.) is not shown to be related to his effectiveness in teaching history as measured by pupil gains in information.

b. Nevertheless, the school principals are considered better teachers by both the superintendents and the pupils;

c. And the teachers who supervise extra-curricular activities are considered less effective teachers than those who do not do such work by both the superintendents and the pupils.

5. a. The teacher's attitude toward his position is not related to teaching effectiveness, as measured by pupil gains in information;

b. But the teachers who enjoy their work very much are considered better teachers by the superintendents and the pupils.

6. a. Teachers who sometimes feel depressed and those who feel that they are not appreciated by the community are no less effective teachers than others, as measured by pupil gains in information;

b. Such teachers are not rated lower in teaching ability by employers, but they are rated lower by pupils.

7. a. The employers' ratings of those teacher traits which are commonly found in teacher rating scales (i.e., friendliness, tactfulness, enthusiasm, etc.) are not related to teaching ability, as measured by pupil gains in information;

b. But employers' ratings of such teacher traits are highly correlated with their own ratings of teaching ability.

8. Subjective ratings of teaching ability by superintendents, trustees, and pupils are intercorrelated.

9. Employers' ratings of teaching ability are not related to pupil gains in information.

10. Pupil ratings of teaching ability have a low but perhaps inconsistent relationship with teaching effectiveness as measured by pupils' gains in information.

From these findings it is obvious that many of the factors which have commonly been the bases for employing teachers are not related to our objective measures of teaching effectiveness.

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